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ABSTRACT

This report summarizes a study to assess the feasibility and desirability of obtaining training feedback information from petty officers attending advanced schools within the Naval Education and Training Command. Section 1 is an introduction. Section 2 presents the technical approach used in the study program, including clarification of issues involved, descriptions of data collection instruments and procedures and techniques used for data reduction and analysis, and description of procedures to evaluate the structured interview method. In section 3 findings of the program are summarized. These include that the training feedback was valid, the structured interview method yields valuable data for curriculum review, and no evidence indicated that use of the method was undesirable due to inconvenience or disruption. Section 4 outlines conclusions and recommendations. Appendixes and attachments, amounting to over one-half of the report, include (1) guidelines for use of the structured interview feedback collection program in other training appraisal efforts, (2) an interview kit (samples of recommended forms), (3) a publication on guidance for conducting training appraisal interviews, and (4) an experimental agenda for determining how to solve training problems. (YLB)

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TAEG Report No. 92

# A STRUCTURED INTERVIEW METHODOLOGY FOR COLLECTING TRAINING FEEDBACK INFORMATION

Eugene R. Hall
Herschel Hughes, Jr.

Training Analysis and Evaluation Group

December 1980

CE 028 395

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This study assessed the feasibility and desirability of obtaining training feedback information from petty officers attending advanced schools within the Naval Education and Training Command. A structured interview method was used to collect feedback about the curricula of six Navy "A" schools/courses. Guidelines for implementing training evaluation programs using the interview method are provided.

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## SUMMARY OF THE STUDY

The Chief of Naval Education and Training (CNET) tasked the Training Analysis and Evaluation Group (TAEG) to assess the feasibility and desirability of obtaining training feedback from petty officers who rotate from fleet billets to the Naval Education and Training Command (NAVEDTRACOM) to attend instructor training (IT) or "C"-level courses in their rating. Development and assessment of a technique for collecting feedback within this context were included in the tasking. The project involved collecting specific feedback about training given in the six "A"-level courses which serve the ratings listed below:

- Aviation Machinist's Mate (AD)
- Machinery Repairman (MR)
- Engineman (EN)
- Mess Management Specialist (MS)
- Aviation Electronics Technician (AT)
- Aviation Fire Control Technician (AQ)
- Aviation Antisubmarine Warfare Technician (AX)
- Fire Control Technician (FT).

A structured interview procedure was used for data collection. Two hundred and eighty-one petty officers attending IT and "C"-level courses were interviewed at their schools. In addition, 82 MS petty officers occupying fleet billets provided feedback about MS "A" school training. Interviews were conducted by civilian and military personnel regularly assigned to the participating activities. Interviewer training was accomplished by members of the TAEG staff.

The general conclusions of this study program are:

- It is both feasible and desirable to collect training feedback information from petty officers recently transferred from fleet billets to attend advanced schools within the NAVEDTRACOM.

- The structured interview procedure yields useful and valuable information for curriculum evaluation.

These conclusions are supported by the following specific findings:

1. A review of the background characteristics of petty officers attending advanced schools within the NAVEDTRACOM and the recency of their fleet assignments led to the conclusion that feedback provided by them would not differ substantially from feedback that could be gathered from their counterparts still serving in operational fleet billets. Thus, training feedback from the school petty officer groups who were interviewed during the study program was considered to be valid.

2. The structured interview method yields valuable data for curriculum review. The data are useful for identifying training deficiencies and the nature of those deficiencies.

3. Approximately 60 percent of the petty officers assigned to advanced courses within the NAVEDTRACOM were qualified to evaluate the fleet job performance of recent "A" school graduates.

4. The Avionics (AV)[1] portion of the study program demonstrated that essentially the same information about "A" school graduate fleet job performance can be obtained from either IT school students or more junior "C" school students. This is particularly important since "C" school students comprise the majority of advanced school attendees.

5. The MS portion of the study demonstrated statistically that feedback obtained from personnel attending advanced schools within the NAVEDTRACOM was equivalent to feedback obtained directly from fleet sources. This finding reinforces the assumption made above. The MS effort also demonstrated that the structured interview method can be used successfully to collect training feedback within the fleet.

6. No "complaints" were voiced concerning the use of school facilities, staff for technical assistance and interviewing, or student time. No reasons became evident to assume that use of the method within the schools was undesirable from an "inconvenience/disruption" of routine standpoint.

7. The average time required to complete individual interviews at all six schools was approximately 1 hour. This met the expressed desires of school commands.

8. Interviewing duties can be shared among a variety of school personnel inexperienced in interviewing techniques. As long as the procedures are followed in a reasonable way, useful data can be obtained. However, better training for interviewers would undoubtedly have improved the quality of comments describing the specific nature of training problems.

In view of the findings and school needs for a continuing flow of feedback information, it is recommended that the structured interview method assessed during the study program be used on a routine basis to collect training feedback within the advanced school context. The appendix to this report provides detailed procedures for implementing and conducting feedback data collection programs using the method.

---

[1] Includes AT, AQ, AX ratings

## SECTION I

## INTRODUCTION

The Training Analysis and Evaluation Group (TAEG) was tasked by the Chief of Naval Education and Training (CNET) to examine the feasibility and desirability of obtaining training feedback information from petty officers recently transferred from the fleet to attend advanced courses within the Naval Education and Training Command (NAVEDTRACOM). The tasking included a requirement to develop and evaluate a method suitable for the systematic collection of feedback information within NAVEDTRACOM schools. The tasking further stipulated that necessary work be performed with at least six Navy ratings and that all feedback obtained be provided to participating schools for use in curriculum evaluation.

### BACKGROUND

To acquire the information and experience necessary to accomplish the tasking, six "A"-level courses/schools were selected for evaluation. These serve the eight ratings listed below:

- Aviation Machinist's Mate (AD)
- Machinery Repairman (MR)
- Engineman (EN)
- Mess Management Specialist (MS)
- Aviation Electronics Technician (AT)
- Aviation Fire Control Technician (AQ)
- Aviation Antisubmarine Warfare Technician (AX)
- Fire Control Technician (FT).

A structured interview method was used to obtain training feedback data from petty officers attending Instructor Training (IT) or "C"-level courses in their ratings. The data were used to assess each "A" school's curriculum in terms of the:

- relevancy of a school's training for graduates' fleet job assignments

- graduates' fleet performance of job tasks for which they received school training.

The evaluation data obtained during the program were provided to the schools in six previous TAEG reports. These are listed below for the ratings involved:

- AD - Technical Memorandum 79-3 (ref. 12)
- MR - Technical Memorandum 79-4 (ref. 2)
- EN - Technical Memorandum 79-5 (ref. 11)
- MS - Technical Report No. 76 (ref. 6)
- AT, AQ, AX - Technical Memorandum 80-4 (ref. 7)
- FT - Technical Memorandum 80-5 (ref. 10)

## PURPOSE

This study assessed the feasibility and desirability of obtaining training feedback information from petty officers attending advanced schools within the NAVEDTRACOM.

The report summarizes the total effort conducted in response to the CNET tasking. It is the final report of a work program initiated in December 1977. It uses data, information, and experience gained within the six NAVEDTRACOM school contexts to provide:

- an assessment of the feasibility and desirability of collecting training feedback information from advanced students within the NAVEDTRACOM
- evaluative information concerning the method developed for feedback data collection.

In addition, the report provides recommendations and procedures for future use of the method for feedback data collection.

## ORGANIZATION OF THE REPORT

The remainder of this report is contained in three sections and an appendix. Section II presents the technical approach. It provides descriptions of the instruments and procedures used for data collection. It also describes techniques used for data reduction and analysis and for evaluating the data collection method. The major findings of the program are given in section III. These are discussed both in relation to the program objectives and to future use of the structured interview method. Section IV presents conclusions and recommendations. The appendix contains guidelines for use of the method in future training appraisal efforts. Guidance is presented for instrument development and use and data reduction and interpretation. These procedures are presented as an aid to the schools for implementing and conducting training appraisal efforts with locally available resources.

## SECTION II

## TECHNICAL APPROACH

This section presents the technical approach used in this study program. A clarification of the issues involved is presented first. This is followed by information describing study planning, procedures/criteria used to select schools, and factors influencing the choice/design of the data collection method. Descriptions of the data collection instruments and procedures and techniques used for data reduction and analysis are also presented. In addition, information is given describing procedures used to evaluate the structured interview method.

### CLARIFICATION OF ISSUES

A definitive assessment of the feasibility and desirability of obtaining training feedback information from petty officers attending advanced NAVEDTRACOM schools required experience and data collection within the school environment. The feasibility question involved concerns such as the availability of "qualified" petty officers from whom feedback could be obtained and the ability of the schools to conduct/support a data collection effort. Assessment of the desirability of obtaining feedback data within the school environment required consideration for data validity and the value/usefulness of the data for curriculum review purposes. Information from both areas; i.e., "feasibility" and "desirability," was relevant to the utility and value of the method for data collection and to recommendations concerning its future use in feedback data collection. The program was organized to obtain the necessary information.

### STUDY PLANNING

To assist subsequent decision making about the conduct of the study, discussions were held early in the program with staff personnel at various NAVEDTRACOM activities. These included the staffs of the Chief of Naval Technical Training (CNTECHTRA); Naval Air Technical Training Center (NATTC), Memphis; Service School Command (SERVSCOLCOM), Great Lakes and San Diego; Commander Training Command, U.S. Atlantic Fleet (COMTRALANT); Commander, Training Command, U.S. Pacific Fleet (COMTRAPAC); and Fleet Training Center (FLETRACEN), Norfolk. The discussions centered on:

- selection of "A" schools for "evaluation"
- training evaluation needs and philosophies
- selection/development of feedback data collection methods and procedures suitable for use in the school environment.

SCHOOL SELECTION. The CNET tasking stipulated that work be conducted with a minimum of six ratings (unspecified). The six "A" schools in the study were selected by TAEG and CNET 015 staff following conversations with and recommendations made by appropriate command personnel. A number of criteria were applied to the selection of schools. These included:

- identification by appropriate, responsible, local command personnel of schools/courses which were in need of evaluative feedback

- unclassified curricula
- geographic representation of advanced schools, especially IT schools
- representative sample of Navy jobs
- sufficient numbers of personnel in the ratings of interest projected for assignment to the advanced schools to permit a reliable assessment of the course and the data collection method within a reasonable period of time
- willingness of the "A" school to support the data collection effort (e.g., provide subject matter expertise for instrument development, personnel to conduct interviews, adequate facilities).

The first six schools which met these principal criteria were selected for evaluation.

METHOD DESIGN CONSIDERATIONS. During the early program discussions, school personnel cited needs for feedback information which could be used to identify training deficiencies and at the same time provide specific detail concerning the nature of any such deficiencies. They also expressed the view that, to minimize staff and student involvement, data collection from any one individual should not exceed approximately 1 hour.

Subsequently, the decision was made to develop a structured interview method for data collection at the schools. It was believed that this method could yield more detailed information than other possible methods (see ref. 9). A number of other considerations also supported this decision. Previous TAEG studies had already produced a viable questionnaire method for collecting feedback data (see refs. 3 and 4). CNET desired that an additional method be developed and evaluated. A structured interview method could be used more readily in the school context than in the fleet setting because of the easier CNET access to potential interviewees. It was also assumed that, overall, there would be fewer competing demands on the time of petty officers attending school than on those in operational fleet billets.

In designing instruments and procedures to conduct interviews, full consideration was given to the realities of the school context and the desires of school staff. Accordingly, design features were deliberately incorporated to facilitate the schools' implementation of the method, to minimize time requirements for data collection, and to obtain detailed information about possible training deficiencies.

## STRUCTURED INTERVIEW METHOD

The structured interview concepts employed were adapted from procedures previously used in fleet feedback projects (for example, refs. 1 and 13). The interview was designed to acquire specific data concerning a recent graduate's performance of job tasks in the fleet for which he had received training at his "A" school. Three categories of job task information were of interest. These involved school-trained tasks that recent graduates:

- did not perform in their fleet assignments
- performed on the job but with difficulty
- performed on the job without difficulty.

The first category provides information for assessing the relevancy of school training to operational job requirements. The second identifies performance difficulties which may be correctable by school training. More specific information regarding reasons either for nonperformance or for performance difficulties was solicited during the interview. The third category identifies tasks for which remedial training need not be considered. However, it can provide information concerning possible overtraining by a school.

DESCRIPTION OF INTERVIEW INSTRUMENTS. Three forms were developed for data collection:

- a Background Data Form for collecting information about the school attendees and selecting individuals to be interviewed
- a Feedback Data Form to guide the interview and for recording data
- a Reason Code Sheet which listed
  - possible reasons for graduate difficulty in task performance
  - reasons why graduates did not perform some tasks.

These forms are described further below.

Background Data Forms. Background Data Forms were used with each rating to obtain information about the individuals attending IT and "C" schools within the NAVEDTRACOM. Data requested included: rate, Navy Enlisted Classifications (NEC), billet titles, type and location of current and previous duty stations, and length of service. This type of information was desired to permit sorting and comparing of interview data on the basis of selected background variables. Questions on the forms also addressed opportunity to observe recent "A" school graduates perform in their fleet jobs, number of graduates observed, and length of observation. This information was needed to determine whom among the advanced school students could be considered qualified evaluators of graduate job performance. Arbitrarily, a "qualified evaluator" was defined as an individual who within the past year had observed the fleet performance of at least one recent "A" school graduate for a minimum of 3 months. Only individuals meeting this criterion were interviewed. In addition to the purposes noted above, background data were also used to describe and summarize the characteristics of the groups from whom feedback data were obtained and to assess the representativeness of school groups to appropriate fleet groups. This issue bears on the question of validity of data from the school source. A sample Background Data Form is contained in the appendix.

Feedback Data Form. The Feedback Data Form was the primary instrument used for the structured interviews. The form was divided into two parts. The first part, "A," could be completed by respondents prior to the interview. The second part, "B," was designed for the interviewer's use in conducting the interview and for recording comments.

The first page of the Feedback Data Form contained instructions for completion of part A. The left hand column listed specific job tasks for a given rating. Subsequent columns in part A provided space for respondents to select one of the three alternatives/categories for each task. Category selection was based on interviewee observations of a typical "A" school graduate during the graduate's first 6 months of duty in the unit. If the specific task was not usually done by the typical, recent graduate, the "Don't Do" category was to be checked. If the task was done and the graduate had no difficulty in performing it, the "Do With Ease" category was checked. If the task was done but the graduate had difficulty performing it, the "Do With Difficulty" category was checked. At all schools, the option of having the respondent complete part A prior to being interviewed was selected. Time to complete part A was recorded. A sample Feedback Data Form is contained in the appendix.

A standard procedure was used across all ratings/schools for initial development of the job task statements used on the Feedback Data Forms. In each instance, TAEG compiled a task list for a rating from the current Naval Occupational Task Analysis Program (NOTAP) job task inventory for that rating. All technical job tasks performed by 20 percent or more of E-3s were included in these initial listings. The task lists were reviewed by the appropriate school staff for clarity, specificity, and relevance to their "A" school curriculum. The listings were revised by school staff to include only those tasks for which the particular "A" school actually provided training. In some cases, tasks not included on an initial NOTAP-derived listing were added by school staff as items for which feedback was especially desired.

The FT school considered the NOTAP job task inventory to be unsuitable for the development of task statements for that school's Feedback Data Form. The FT "A" school curriculum is given in two phases. Individuals with a 4 year service obligation (4 YOs) receive only Phase I of the curriculum. Those with a 6 year obligation (6 YOs) receive both phases plus "C" school training relevant to anticipated future assignments. The FT school staff stated that the NOTAP list was more relevant to the fleet work of 6 YOs than to 4 YOs. The 4 YOs, consonant with their training, are normally expected to perform only the more basic subtasks related to a listed NOTAP task. Since the FT portion of the study was concerned only with the phase I curriculum, the task statements developed for the FT Feedback Data Form reflected only these basic subtasks.

Part B of the Feedback Data Form was completed by the interviewer during the interview session. The interviewer reviewed the respondent's selection of task categories (part A) and solicited and recorded reasons why tasks were classified as "Don't Do" or "Do With Difficulty." A list of suggested reasons, "Reason Codes," was provided the respondent for nonperformance of a task or for task performance difficulty. The interviewer recorded the interviewee's choices of reason codes and all other amplifying information/comments obtained. Finally, the interviewer asked if the respondent had any additional comments to make concerning improvement of "A" school training. These were recorded on the last sheet of the Feedback Data Form. At the completion of the interview, the interviewer recorded the time required on the cover sheet.

Reason Codes. Reason codes consisting of letters representing possible reasons for nonperformance or for difficulty of performance were developed for use during interviews. The letter codes provided a shorthand method of recording data, served as examples of the kind and level of explanatory information sought, simplified manual data recording, and permitted machine processing.

For each rating/school, a list of "reasons" why tasks were not performed or were performed with difficulty was initially devised by TAEG. Each list was reviewed by the appropriate school staff to insure its applicability to the rating. An expanded list of "reasons" is contained in the appendix. Some examples are presented below.

Examples of reasons used with "Don't Do" selections are:

- Task not done on my ship/station/aircraft/system.
- Task not expected of someone in recent graduate's rate or level of experience.
- Task expected of recent graduates but average graduate unable to perform.

Examples of reasons used for "Do With Difficulty" selections are:

- Doesn't know which tools or equipment to use.
- Doesn't know how to use tools or equipment properly.
- Lack of proper equipment to accomplish task.
- Doesn't know how to use technical manuals/publications or other written references properly.

During the interview sessions, interviewers solicited amplifying information supporting the interviewee's selection of specific reason codes and concerning which aspects of the job tasks were difficult for graduates to perform.

INTERVIEWEES. Within the six NAVEDTRACOM schools, 281 individuals were interviewed. These were petty officers who:

- had recently returned from the fleet to attend IT school or "C"-level courses
- held one of the eight ratings of interest to the program

- had observed the fleet job performance of recent graduates of the appropriate "A" school for a minimum period of 3 months within the immediately preceding year.

For the MS portion of the program, 82 petty officers still serving in operational fleet billets (who met the third qualification listed above) were interviewed to obtain information about the fleet job performance of recent MS "A" school graduates. Data from this fleet group were used to assess directly the validity of data obtained from MS petty officers within the NAVEDTRACOM. This topic is discussed more fully below.

To provide sufficient data on which to base reliable conclusions, a decision was made to continue data collection at each activity until a minimum of 30 interviews had been completed. Because of infrequent scheduling of petty officers to the IT and their respective "C" schools, and the fact that not all attending had observed "A" school graduate performance, data collection required longer periods of time than originally anticipated. (See section III.)

DATA COLLECTION. During initial project coordination visits to the schools, regularly assigned civilian education and training specialists and/or military staff were identified by the cognizant commands to conduct interviews of the advanced students. At all schools, the local Curriculum Instructional Standards Office (CISO) monitored/coordinated data collection efforts. TAEG personnel also conducted interviews at the schools.

Most of the individuals who functioned as interviewers participated in a 2½ hour training session conducted by TAEG at each school. This was given to promote standardization (and, thereby, enhance reliability) of the interview procedures. The training featured a videotape of a "model" interview accompanied by a verbal explanation/discussion of the desired interview procedures and use of data collection instruments. In several instances, designated personnel also observed TAEG staff conduct interviews. In some cases, owing to local command needs, individuals other than those "trained" were assigned to collect data from the advanced school students. All individuals, however, did receive an interview kit which contained detailed instructions for conducting interviews.

Selecting and scheduling of individuals for interviews were accomplished at the local level. Practices employed varied at different locations because of different administrative procedures affecting availability of the advanced students. At some NAVEDTRACOM locations, Background Data Sheets were distributed and completed during class time; at others, they were completed by students as part of a school's routine check-in procedure. Most "qualified" individuals (i.e., had observed "A" school graduate fleet performance for the specified period and length of time) first completed part A of the Feedback Data Form and were then scheduled for interviews at a later date. For the most part, interviews were conducted on a time-available basis during the student's stay at the advanced school. The schools were encouraged, however, to conduct interviews with the students as soon as possible after their arrival to avoid any possible "biasing" effects that could occur from continuing exposure to Training Command concerns, attitudes, or "problems."

For the MS portion of the program, feedback data were collected from school attendees at the SERVSCOLCOM, San Diego, and at the FLETRACEN, Norfolk. Data were also collected from fleet MS personnel at the Recruit Training Center, Orlando, and within East and West Coast fleet units. At the FLETRACEN, data were collected from "C" school students on a time-available basis. All interviews at the FLETRACEN were conducted by the Curriculum Instructional Standards Officer. TAEG personnel interviewed MSs at Orlando. These MSs were scheduled by their command. Interviews to collect data from East Coast fleet ships and shore units were conducted by the Navy Food Management Team (NAVFOODMGTM) at Norfolk. The NAVFOODMGTM at San Diego interviewed MSs at West Coast activities. All interviews by NAVFOODMGTM personnel were conducted during routine assistance visits to fleet activities. On both coasts, interviews were conducted on a time-available, noninterfering basis by the NAVFOODMGTMs. At all fleet activities (including Orlando), parts A and B of the Feedback Data Form were completed simultaneously.

## DATA PROCESSING AND ANALYSIS

Data collected by NAVEDTRACOM personnel within the schools (including Background Data Forms completed by individuals who had not observed recent graduate performance for the required length of time) were mailed to TAEG. Data collected by the NAVFOODMGTMs (for MSs) were also mailed. Within TAEG, all data were recorded on worksheet forms devised to facilitate data summarization and analysis. (Separate sets of forms were, of course, used for each rating/school.)

Background data were recorded on large worksheet forms devised for this purpose. Data from part A and part B were recorded on "Presentation of Data" worksheets. One worksheet form was used to record all interview data for each given task. Tabulations were made from the worksheet entries of the number of times tasks were judged by interviewees as "Do With Ease," "Do With Difficulty," or "Don't Do." In addition, counts were made of the number of times each Reason Code was chosen for tasks categorized as "Do With Difficulty" or "Don't Do." Comments made by interviewees pertaining to each task--either to clarify why particular Reason Codes were selected or to add amplifying information--were also recorded on these forms.

Worksheet data were used to determine the degree to which recent graduates were utilized to perform the job tasks of a rating at activities represented by the interviewees. This was expressed as the percentage of interviewees who reported that the graduates were used at fleet units to perform each of the various job tasks. Utilization percentages were calculated by dividing the sum of all "Do With Ease" and "Do With Difficulty" responses for a task by the total number of responses for that task and multiplying the quotient by 100. These "utilization percentages" reflect relevancy of school training for the graduates' fleet jobs.

The worksheet data were also used to determine the degree of difficulty (conversely, ease) with which graduates performed each of the various job tasks of a rating. The percent of respondents (interviewees) who thought the graduates they observed did a task with difficulty was derived by dividing the number of "Do With Difficulty" selections for each task by the sum of all "Do With Ease" and "Do With Difficulty" responses for a task and multiplying the quotient by 100. (Computationally, 100 minus the "Do With Difficulty" percentage gives the "Do With Ease" percentage for a task.) These "percent difficulty" values provide indications of areas where school training for the performance of given tasks may be deficient.

SPECIAL ANALYSES. For two of the schools (MS and AV), opportunities were made to evaluate/assess the equivalence of feedback data obtained from individuals in different assignment categories.

For the MS rating, feedback data collected in the schools were statistically compared to data collected within the fleet. This comparison was important to the overall program since it bears directly on the issue of the validity of feedback from the school source. Findings that school data are equivalent to fleet data means that they should lead to essentially the same conclusions about a training program. Therefore, data from this school source can substitute for feedback from the fleet.

For the avionics ratings (AT, AQ, AX), data were collected from sufficient numbers of IT school students and "C" school students to permit a comparison of feedback from these two sources. Petty officers attending IT schools are typically more senior than those attending "C" schools. Hence, [illegible] views may differ from the "C" school students' views. Accordingly, [illegible] important to determine if there were any substantial differences in the feedback data from these two groups of interviewees. Findings that the data were equivalent would mean that data could be gathered indiscriminately from either group and be used separately, or mixed, with confidence that either set/source of data would lead to essentially the same conclusions about the job performance of recent graduates. (Findings that the data were not equivalent in this case would provide no information concerning which source was the most desirable for obtaining feedback.) This information was considered important to the overall program since, with few exceptions, the number of individuals assigned annually to IT school from a particular rating is relatively small while a fairly substantial number attend the "C" schools.

For all comparisons, data equivalence was assessed through the use of the Pearson-Product moment correlation technique (see ref. 5). This statistic yields a coefficient of correlation (r) which indicates numerically the degree of relationship between two sets of variables. Correlation coefficients may take on values ranging from 0 to plus or minus 1. High correlation coefficients indicate that distributions of ratings/values are similar. Correlation does not address questions of similarity in magnitude (e.g., whether these are significant differences in the average values of variables). High positive correlations between appropriate distributions of ratings/values obtained from different sources would support conclusions that the sources provide equivalent data.

## METHOD EVALUATION

To provide a partial basis for evaluating the structured interview method used, information was desired from school staff concerning the value or usefulness for curriculum review of various aspects of the data. To obtain this information, all data for each rating were critically reviewed by subject matter experts (SME) at the appropriate schools.

At the completion of data collection concerning each school, completed "Presentation of Data" worksheets for the job tasks evaluated for a rating were sent to that school. Copies of summary data reflecting graduate utilization to perform school-trained tasks and difficulty of task performance, plus all general comments made by interviewees concerning changes/improvements to the "A" school's training, were also transmitted.

At each school, five staff members reviewed the data. Each SME completed, independently of the others, one "Usefulness of Data" worksheet for each task. These worksheets were especially devised for this purpose. SMEs recorded their opinions on the worksheets about the usefulness of sorting the job tasks into three categories, usefulness of the reason codes and interviewee comments, and about the overall usefulness of the data. The rating scale allowed three choices for the assessment: "Not Helpful," "Of Some Help," "Very Helpful." The SMEs also assessed the data for their contribution to training problem identification.

The completed "Usefulness of Data" worksheets were returned by mail from the MS and MR schools and collected during visits to the other schools. At these other schools, working meetings were held between TAEG and school staff to discuss data value and usefulness. In all cases, summaries of the SME data were prepared to reflect collective opinions.

## SECTION III

## FINDINGS AND DISCUSSION

Findings of the program which bear on the issues of feasibility and desirability of obtaining training feedback from petty officer students within the NAVEDTRACOM are presented below. In this section, summary data obtained over all six schools are used where necessary to support particular findings and to facilitate discussions concerning data use and interpretation. However, detailed evaluation data concerning specific aspects of a particular school curriculum are not reported. This information can be obtained from the individual school evaluation reports (refs. 2, 6, 7, 10, 11, and 12). Information gathered during the program concerning the value and usefulness for curriculum review of the method used is also presented.

### FEASIBILITY ISSUE

Findings concerning aspects of the feasibility of collecting training feedback within NAVEDTRACOM schools are given below.

TIME TO COMPLETE INTERVIEWS. Time to collect data bears directly on the issue of feasibility of collecting data within the school environment. This is important both for its implications for "lost" class time for the interviewees and also for the time which school staff lose from other duties while conducting interviews.

The average times required to complete part A and part B of the "interview" procedure are shown in table 1. No appreciable staff time was involved in part A since the interviewee completed this independently. Part B did involve both interviewer and interviewee time. The total time shown in the table is simply the sum of the two means which reflects an average time for a student to complete both parts of the interview procedure.

TABLE 1. AVERAGE TIMES (MINUTES) TO COMPLETE INTERVIEWS

| | Average Completion Times | | | |
|---|---|---|---|---|
| Rating | Part A | Part B | No. of Tasks | Total Average |
| AD | 10 | 25 | 50 | 35 |
| MR | 14 | 42 | 63 | 56 |
| EN | 16 | 21 | 45 | 37 |
| MS | 23 | 38 | 83 | 61 |
| AV[1] | 17 | 26 | 51 | 43 |
| FT | 14 | 36 | 31 | 50 |

[1] Includes AT, AQ, AX ratings

In the worst cases (MR, MS), the average time required for a respondent (interviewee) to complete the procedure was approximately 1 hour. Staff time to conduct the interviews (part B) did not exceed 45 minutes. This met the expectations/desires of school commands to limit interviews to approximately 1 hour. Accordingly, there were no suggestions of undue burdens being placed on the schools by virtue of regularly assigned school staff taking time off from other duties to conduct the interviews. Over all six schools, the average student time to address/discuss any one job task was 64 seconds. Thus, for future data collection with both parts of the procedure being completed simultaneously, attention could be focused on at least 50 job tasks within a 1 hour period.

AVAILABILITY OF QUALIFIED JUDGES. A second aspect of the feasibility issue concerned the availability within the schools of qualified judges of "A" school graduate performance. For the program conducted, a qualified respondent was arbitrarily defined as an individual ("C" school or IT school student) who had within the immediately preceding year observed the fleet job performance of at least one recent (i.e., 3-6 months after graduation) "A" school graduate for a minimum of 3 months.

Table 2 shows the number of individuals reported attending IT and "C" schools during periods of the study. It also shows the number (and percentage) in each rating who met the eligibility criterion. According to the data in the table (which was reported by the participating schools), it can be expected that approximately 45 to 80 percent of IT students in a rating and 50 to 75 percent of those selected for "C" school can provide feedback on "A" school training. The proportion of MS "C" school students at the SERVSCOLCOM, San Diego, who reported that they had not observed recent "A" school graduate performance is unusually high. The exact reasons for this are unknown. In view of the Norfolk "C" school data, however, and data from the other ratings, it is anticipated that future samples of MS "C" school students at San Diego would show approximately the same values as the other schools.

The final column of table 2 shows the percentage (in parentheses) of advanced students (i.e., IT and "C" school students combined) who were considered to be qualified judges of "A" school graduate performance. These data suggest that approximately 6 of every 10 (median percentage equals 64) petty officers ordered to the NAVEDTRACOM for advanced training can provide feedback information concerning an "A" school graduate's performance. Thus, for future data collection efforts, the number of potential interviewees can be estimated as 60 percent of the AOB or projected student input.

One additional point is relevant to the question of future data collection from IT and/or "C" school students. This concerns the number of individuals who should be interviewed to obtain reliable feedback data concerning "A" school training. The TAEG study program was more directly aimed at the evaluation of the methodology developed than at evaluation of an "A" school's training. A greater number of interviews were needed for reliable assessment of the method than would normally be needed for curriculum evaluation purposes. While no universal rule can be given regarding the number of individuals to interview to obtain reliable feedback data, a convenient rule of thumb is to continue interviewing until no new information is being obtained. That is, when interviewee comments, for example, become highly redundant to information already obtained, it can be considered that further data collection is unnecessary.

TABLE 2. DISTRIBUTION OF PETTY OFFICERS INTERVIEWED WITHIN THE NAVEDTRACOM

| | Data Collection Period | | Number Attending | | Number (and %) Interviewed | | Total No. (and %) Interviewed |
|---|---|---|---|---|---|---|---|
| Rating | Start | End | IT School | C School | IT School | C School | |
| AD | 5/22/78 | 11/28/78 | 14 | 56 | 9 (64) | 35 (63) | 44 (63) |
| MR | 6/21/78 | 12/18/78 | 8 | 59 | 6 (75) | 32 (54) | 38 (57) |
| EN | 7/26/78 | 5/14/79 | 11 | 84 | 5 (45) | 46 (55) | 51 (54) |
| MS[1] | 6/21/78[a] | 2/27/79 | 12 | 128 | 10 (83) | 38 (30) | 48 (34) |
| | 6/21/78[b] | 11/17/78 | - | 26 | - | 17 (65) | 17 (65) |
| AV[2] | 5/11/78[c] | 1/26/79 | 38 | - | 30 (80) | - | 30 (80) |
| | 11/08/78[d] | 1/26/79 | - | 38 | - | 28 (74) | 28 (74) |
| FT | 7/25/78 | 8/31/79 | 18 | 14 | 14 (78) | 11 (79) | 25 (78) |

[1] Does not include 82 MSs interviewed in fleet billets

[a] SERVSCOLCOM, San Diego
[b] FLETRACEN, Norfolk

[2] Includes AT, AQ, AX ratings

[c] IT students
[d] "C" school students.

Equivalence of IT and "C" School Student Data. During the program, a logical question arose concerning the equivalence of IT student and "C" school student feedback data. This issue has direct implications for the number of "qualified" judges available within the Command. The correlation obtained between AV IT and "C" school students' data for percent utilization of recent AV A1 graduates to perform surveyed job tasks was .86. The correlation between the data for the percent reporting graduate ease/difficulty of task accomplishment was .71. Both correlations are statistically significant. Both reflect a high degree of relationship between the data from the two groups and support a conclusion that feedback data from either group are interchangeable. Thus, feedback data of the form collected during this program whether obtained from IT or "C" school students should lead to essentially the same conclusions about school training even though the IT school students were considerably more senior (i.e., higher rated, greater time in service) than the "C" school students. This finding is important since the majority of petty officer students within the NAVEDTRACOM are assigned to

"C"-level courses. Although this assessment could only be made for the Avionics Technician, it is believed that similar results would be obtained for other ratings.

## DESIRABILITY ISSUE

The most important consideration underlying the desirability of obtaining training feedback within the NAVEDTRACOM is the validity of the data obtained from the advanced school students. In this context, validity refers to the equivalence of data from school groups and current fleet users of the "A" school graduates. During the program, data validity was (1) inferred based on examination of the interviewees' background characteristics and (2) assessed statistically for the MS rating.

VALIDITY OF SCHOOL FEEDBACK DATA. Feedback obtained within the NAVEDTRACOM was assumed to be valid for the reasons presented below. At all six schools, the petty officers interviewed had only recently returned from fleet billets (i.e., within the previous 6 to 8 weeks). They reported to school billets from broad, diverse groups of Navy units typical of those to which the respective "A" school graduates are assigned. As a group, the interviewees had a wide range and breadth of experience in their respective ratings. All had recent opportunity to observe the fleet job performance of "A" school graduates. Because of these factors, it is believed that they adequately represented fleet users of the "A" school graduates (i.e., they constituted representative samples of the larger fleet user populations). Accordingly, it was assumed that the data obtained from the school groups would be equivalent to data from individuals still serving in fleet billets.

For the MS rating, opportunity was created to test this conclusion statistically. As mentioned previously, feedback data were collected simultaneously from MSs attending NAVEDTRACOM schools and MSs currently in fleet billets. Eighty-three job tasks were evaluated by each group. Correlational analyses were performed on the data from the two groups of MSs. The correlation between graduate utilization proportions reported by 82 fleet MS petty officers and those reported by 65 petty officers attending IT and "C" schools was .91. The correlation between fleet reported performance difficulty proportions and school source reports of performance difficulty was .87. These high correlations indicate that the two sources do provide equivalent information.

While the above finding is specific to the MS rating (and the type of data collected), there are no reasons apparent to suggest that the school source would provide training feedback information different from the fleet source for most, if not all, other ratings as well. Exclusive future reliance on the school source for feedback information does not seem warranted, however, since there may be only relatively small numbers of advanced students (who have observed "A" school graduate performance) available within the NAVEDTRACOM at any given point in time. Depending upon the urgency of feedback needs, data from fleet personnel will probably still be desirable.

## USE AND INTERPRETATION OF FEEDBACK DATA

Information concerning the use and interpretation of graduate task utilization and task performance difficulty/ease data is given below. Summaries of data obtained during the program are used to facilitate the discussion. These summaries should not be used to formulate conclusions about a particular school's training. The detailed information presented in the individual reports (refs. 2, 6, 7, 10, 11, and 12) is more suitable for this purpose.

UTILIZATION DATA. Table 3 shows the number of tasks for each rating falling into various percent utilization categories and the number of tasks evaluated for each rating. The table shows, for the units represented by the individuals interviewed, the percentage(s) of typical, recent "A" school graduates who were used to perform job tasks for which they received training at the school. Two examples of how to read table 3 are:

- 91 to 100 percent of typical, recent AD "A" school graduates performed 8 of 50 school-trained tasks at their assigned units
- 81 to 90 percent of typical, recent MS "A" school graduates were used to perform 25 of the school-trained tasks evaluated by the MS interviewees.

TABLE 3. SUMMARY OF "A" SCHOOL GRADUATES' FLEET UTILIZATION TO PERFORM SCHOOL-TRAINED TASKS

| Percent Utilization Values | Numbers (and Cumulative Percent) of Tasks Falling into Each Utilization Category for a Specified Rating | | | | | |
|---|---|---|---|---|---|---|
| | AD | MR | EN | MS | AV[1] | FT |
| 91-100 | 8 (16) | 26 (41) | 6 (13) | 10 (12) | 13 (25) | 3 (10) |
| 81-90 | 9 (34) | 9 (56) | 5 (24) | 25 (42) | 7 (39) | 1 (13) |
| 71-80 | 11 (56) | 9 (70) | 12 (51) | 18 (64) | 7 (53) | 4 (26) |
| 61-70 | 14 (84) | 12 (89) | 2 (56) | 7 (72) | 3 (59) | 3 (35) |
| 51-60 | 3 (90) | 7(100) | 10 (78) | 6 (80) | 9 (76) | 5 (52) |
| 41-50 | 4 (98) | | 6 (91) | 15 (98) | 7 (90) | 4 (65) |
| 31-40 | 1 (100) | | 0 (91) | 2 (100) | 3 (96) | 6 (84) |
| 21-30 | | | 4 (100) | | 2 (100) | 4 (97) |
| 11-20 | | | | | | 1 (100) |
| 0-10 | | | | | | |
| Number of Tasks Evaluated | 50 | 63 | 45 | 83 | 51 | 31 |

[1] Includes AT, AQ, AX ratings

The cumulative percent utilization values, shown in parentheses in the table, can be used in various ways to assess the relevancy of school training for operational job requirements. For example, 51-60 percent of the typical "A" School graduates were used at the units represented to perform:

- 90 percent (i.e., 45 of 50) of the job tasks considered by the AD rating
- 100 percent of the 63 job tasks evaluated by MRs
- 78 percent of the EN job tasks
- 80 percent of the MS job tasks
- 76 percent of the AV job tasks
- 52 percent of the FT job tasks.

Overall, the cumulative percentages in the table indicate that utilization of graduates to perform school-trained job tasks is relatively high for all the ratings surveyed. The data suggest that the most job relevant curriculum (as reflected by the tasks evaluated for the schools surveyed) is the MR curriculum. At least 80 percent of typical recent graduates are used at the units represented by the interviewees to perform more than half (56 percent) of the tasks trained at the "A" school. Fifty percent or more of the MR graduates perform all of the school-trained tasks at the units.

Aggregated as they are for this report, percent utilization data could be useful for management information purposes. For example, utilization data could be used to compare different schools in terms of the responsiveness or relevance of their training to operational fleet job requirements/expectations concerning graduates. At the individual school level, the utilization value data are useful for suggesting specific tasks for which school training may be either totally eliminated or training emphases changed. Decisions of this type, however, also require additional knowledge concerning reasons for nonutilization of the graduates.

The interview procedure was designed to gather some of the necessary additional information. The reason codes used with "Don't Do" choices provided one source of this information. Interviewee comments provided another. Table 4 lists the predominant reasons given (through the mechanism of reason code selection) for nonutilization of graduates. The primary reason given across all ratings was that the task was not required at that particular unit. Still, more information is needed, however, concerning why such tasks are not performed. In this case, interviewee comments should be examined to determine if training emphases can be changed. It may be found, for example, that certain job tasks may no longer be requirements of a rating.

PERFORMANCE DIFFICULTY/EASE DATA. While the percent utilization values have implications for relevance of school training (i.e., "are the right things being taught?"), the percent difficulty values reflect on the quality of school training for the fleet job. These values relate to the question of "How well the school prepares individuals for the operational job."

TABLE 4. SUMMARY OF REASONS FOR NONUTILIZATION OF GRADUATES TO PERFORM SCHOOL TRAINED TASKS

| Rating | Percent Time Reason Code Selected<br>1* | <br>2** |
|---|---|---|
| AD | 54 | 39 |
| MR | 41 | 38 |
| EN | 79 | 12 |
| MS | 38 | 24 |
| AV[1] | 69 | 27 |
| FT | 37 | 47 |

* Reason Code 1--Task not performed on my ship/aircraft/station/system
** Reason Code 2--Task not expected of someone in recent graduates's rate or level of experience

[1] Includes AT, AQ, AX ratings

Table 5 presents data showing the ease/difficulty with which typical, recent "A" school graduates were reported to perform job tasks at the units represented by the interviewees. The table shows the percent of recent graduates (first column) who perform a given number of tasks with ease (cell entries), and the percent of recent graduates who perform the same tasks with difficulty (last column). The table shows, for example, that 71-80 percent of typical, recent MR "A" school graduates perform 20 job tasks of the rating without difficulty (i.e., with ease) and that 20-29 percent of the graduates have difficulty performing these same tasks. Examination of the data in table 5 shows that, overall, typical "A" school graduates are reported to have difficulty performing many of the tasks for which they received training at the schools.

The percent difficulty values are useful for making preliminary decisions concerning the possible existence of training "problems." For example, if 1 of every 5 graduates (20 percent difficulty value) is reported to have difficulty performing a particular task, additional information should be obtained to determine if training requires attention. Two sources of such additional information are available from the interview procedure: reason codes and interviewee comments.

For the program conducted, "reasons" for performance difficulties were represented by letter codes ("A," "B," "C," etc.). Some of these were aimed at discovering which performance difficulties may not be attributable to and, hence, not easily correctable by school training (e.g., equipment operating peculiarities, difficult access to equipment for task performance and other peculiarities of a specific work environment). A second source of information concerning reasons for performance difficulties was the comments made about the specific nature of the performance difficulties.

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TABLE 5. SUMMARY OF GRADUATE EASE OF TASK PERFORMANCE DATA

| Percent Perform With Ease Values | Number of Tasks in Each Category for Rating | | | | | | Percent Perform With Difficulty Values |
|---|---|---|---|---|---|---|---|
| | AD | MR | EN | MS | AV[1] | FT | |
| 91-100 | 4 | 3 | 8 | 7 | 4 | 0 | 0-9 |
| 81-90 | 5 | 14 | 12 | 17 | 5 | 2 | 10-19 |
| 71-80 | 4 | 20 | 17 | 24 | 8 | 4 | 20-29 |
| 61-70 | 6 | 8 | 3 | 18 | 9 | 3 | 30-39 |
| 51-60 | 11 | 5 | 3 | 9 | 5 | 1 | 40-49 |
| 41-50 | 7 | 8 | 2 | 4 | 12 | 2 | 50-59 |
| 31-40 | 7 | 2 | | 4 | 5 | 10 | 60-69 |
| 21-30 | 2 | 3 | | | 3 | 4 | 70-79 |
| 11-20 | 1 | | | | | 4 | 80-89 |
| 0-10 | 3 | | | | | 1 | 90-100 |
| Number of Tasks Evaluated | 50 | 63 | 45 | 83 | 51 | 31 | |

[1] Includes AT, AQ, AX ratings

Taken together, these two sources provided information to assess which tasks should/could be addressed in terms of remedial training and also the "type" of remedial action indicated to correct subsequent on the job performance difficulties. Reasons given for performance difficulties were highly variable across the ratings surveyed. Consequently, they cannot be succinctly summarized here. This information is contained, however, in the individual school reports (refs. 2, 6, 7, 10, 11, and 12).

## METHOD EVALUATION

As mentioned previously all data obtained from the interviews were reviewed by five staff SMEs at each of the six schools. This review was requested by the TAEG to provide an evaluation of the structured interview method in terms of the usefulness of the data for curriculum review and its relevance for identifying training problems.

DATA USEFULNESS. Table 6 summarizes SMEs opinions across the six "A" schools concerning the usefulness of the interview data for curriculum review. The entries in the cells are average (mean) "usefulness" values. These were computed by assigning:

- "0" to "not helpful" choices
- "1" to "of some help" choices
- "2" to "very helpful" choices.

The means were derived by dividing the sum of the numerical values by the number of tasks evaluated for a rating.

TABLE 6. SUMMARY OF SME OPINION OF USEFULNESS OF THE INTERVIEW DATA

| | Mean Usefulness Ratings | | | | | |
|---|---|---|---|---|---|---|
| | AD | MR | EN | MS | AV[1] | FT |
| Usefulness of "Do with Ease," "Don't Do" and "Do with Difficulty" Figures | 1.94 | 1.11 | 1.98 | 1.0 | 1.14 | 1.19 |
| Usefulness of Reason Codes and Figures | 1.18 | 1.03 | 1.56 | .99 | .88 | 1.10 |
| Usefulness of Comments (Clear, precise, etc.) | 1.16 | 1.06 | 1.16 | .92 | 1.18 | 1.10 |
| Overall Usefulness of Data | 1.42 | 1.03 | 1.84 | 1.0 | 1.06 | 1.13 |

[1] Includes AT, AQ, AX ratings

As is evident from the table, school SMEs generally considered the data to be helpful for curriculum review. Reason codes which provided reasons for graduate difficulties or for nonperformance of tasks were also generally considered helpful. They were considered to be of most use, however, when they were coupled with amplifying comments which explained the reasons for their selection.

Interviewee comments which provided detailed information concerning the specific nature of graduate performance difficulties were generally considered by all SMEs to be the most useful feature of the data. However, the technical content and clarity of the comments varied considerably. This should probably be attributed to the relative inexperience of the interviewers rather than to any inherent defects of the method. As experience is gained with interviewing procedures, interviewers usually become more skillful in extracting directly relevant, detailed information and in stating it in more clear and concise terms.

TRAINING PROBLEM IDENTIFICATION. A final consideration concerning the value of any feedback data collection method pertains to the extent to which obtained data permit identification of training deficiencies. Figure 1 summarizes SMEs' opinions across the six schools concerning the "relevance" of the interview data for permitting identification of training "problems." The cells show the numbers of tasks falling into each category. Placement of a task within a given category was either by SME consensus (AD, EN, AV, FT) or agreement of at least 3 of the 5 reviewers at a school (MS, MR). As the table shows, SMEs identified a substantial number of tasks as representing areas of training deficiency.

## POSTNOTE

For future data collection it is desirable that personnel assigned interviewing duties have better (i.e., more) training and/or greater procedural experience than those employed in this program. This would undoubtedly enhance the reliability of the procedure and result in more direct, concise statements concerning the nature of graduate job performance difficulties. However, the overall results of the study did demonstrate that interviewing duties could be shared among a variety of school personnel who are relatively inexperienced in interviewing techniques. As long as the procedures are followed in a reasonable way, useful data can be obtained.

## SUMMARY OF FINDINGS

During this study program, training feedback data concerning the curricula of six "A" schools/courses were collected within the NAVEDTRACOM from 281 petty officers representing eight different ratings. Data were also collected from 82 MS petty officers still serving in fleet billets. A structured interview method was used for data collection. Data and experience gained during the program were used to assess the feasibility and desirability of obtaining feedback data within the school environment and to evaluate the utility of the structured interview method for this purpose. The principal findings of the program which bear on its overall objectives are summarized below.

1. A review of the background characteristics of petty officers attending advanced schools within the NAVEDTRACOM and the recency of their fleet assignments led to the conclusion that feedback provided by them would not differ substantially from feedback that could be gathered from their counterparts still serving in operational fleet billets. Thus, training feedback from the school petty officer groups who were interviewed during the study program was considered to be valid.

2. The structured interview method yields valuable data for curriculum review. The data are useful for identifying training deficiencies and the nature of those deficiencies.

3. Approximately 60 percent of the petty officers assigned to advanced courses within the NAVEDTRACOM were qualified to evaluate the fleet job performance of recent "A" school graduates.

4. The AV portion of the study program demonstrated that essentially the same information about "A" school graduate fleet job performance can be obtained from either IT school students or more junior "C" school students.

| Category | Rating | | | | | | Six Course NAVEDTRACOM Average (Median) |
|---|---|---|---|---|---|---|---|
| | AD | MS | EN | AV | MR | FT | |
| Data suggest little difficulty in performance; therefore, no problem is apparent | .28* | .30 | .60 | .37 | .62 | .19 | .34 |
| Data identify a training problem: | .62 | .70 | .27 | .43 | .38** | .81 | .52 |
| - The problem should be addressed in the A1 course | .20 | .00 | .09 | .20 | .05 | .81 | .14 |
| - The problem should be addressed another segment of the training pipeline (including correspondence courses and OJT) | .60 | .70 | .27 | .43 | .16 | .19 | .35 |
| Data imply training is not the primary cause of difficulty or that identification as a training problem is inconclusive | .10 | .00 | .13 | .20 | .00 | .00 | .05 |
| Number of Tasks Evaluated | 50 | 83 | 45 | 51 | 63 | 31 | |

* The numbers in this figure indicate the proportion of job tasks (out of those surveyed) for each rating selected by the SMEs for each category.

** SME agreement was not reached about location for remediation for 11 of the 24 (.18 of the total number surveyed) job tasks which were identified as training problems.

Figure 1. Summary of SMEs Use of Data to Identify Training Problems

This is particularly important since "C" school students comprise the majority of advanced school attendees.

5. The MS portion of the study demonstrated statistically that feedback obtained from personnel attending advanced schools within the NAVEDTRACOM was equivalent to feedback obtained directly from fleet sources. This finding reinforces the assumption made under paragraph 1 above. The MS effort also demonstrated that the structured interview method can be used successfully to collect training feedback within the fleet.

6. No "complaints" were voiced concerning the use of school facilities, staff for technical assistance and interviewing, or student time. No reasons became evident to assume that use of the method within the schools was undesirable from an "inconvenience/disruption" of routine standpoint.

7. The average time required to complete individual interviews at all six schools was approximately 1 hour. This met the expressed desires of school commands.

8. Interviewing duties can be shared among a variety of school personnel inexperienced in interviewing techniques. As long as the procedures are followed in a reasonable way, useful data can be obtained. However, better training for interviewers would undoubtedly have improved the quality of comments describing the specific nature of training problems.

# SECTION IV

# CONCLUSIONS AND RECOMMENDATIONS

## CONCLUSIONS

Experience gained and feedback data collected during this work program lead to the conclusions that:

- It is both feasible and desirable to collect training feedback information within the NAVEDTRACOM advanced school context from petty officers who rotate from fleet billets to attend IT or "C"-level courses in their ratings.
- The structured interview procedure yields valuable and useful information for curriculum evaluation.

## RECOMMENDATIONS

It is recommended that the structured interview method assessed during the study program continue to be used to collect training feedback. The method can be used to collect information concerning the specific nature of any training deficiencies that may be revealed by NAVEDTRACOM Level II training appraisal surveys, or to conduct Level III course appraisals (see OPNAV Instruction 1540.50, 15 May 1979). It can also be used to obtain feedback information within the schools on a continuing, routine basis when a course is not scheduled for formal evaluation by the command.

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# APPENDIX

## GUIDELINES FOR CONDUCTING A STRUCTURED INTERVIEW FEEDBACK DATA COLLECTION PROGRAM

This appendix presents guidelines for implementing feedback data collection programs using the structured interview method assessed during the TAEG study. Recommendations for data use in curriculum evaluation/revision are also provided.

## INTRODUCTION

The results of the study program demonstrated that the structured interview procedure can be used to obtain training feedback information which would be valuable for school use in identifying training deficiencies and the nature of those deficiencies. The method can be used on a routine basis to collect feedback from newly reporting petty officers. This feedback can be used whenever needed (1) for curriculum review, (2) as input to the Annual Course Review, or (3) to obtain additional detailed information on training inadequacies revealed by fleet complaints or by data collected via the NAVEDTRACOM Training Appraisal System. Since the collection of feedback data within the NAVEDTRACOM does not impact or impinge on fleet resources or otherwise require access to fleet personnel, data can be collected at any time. These data should be particularly desirable/useful during those years in which a particular course is not scheduled for a formal evaluation by CNET.

The remainder of this appendix presents guidelines for conducting feedback data collection programs using the structured interview method assessed.

## GUIDELINES FOR CONDUCTING A SCHOOL FEEDBACK DATA COLLECTION PROGRAM

Figure A-1 shows the steps involved in (1) planning and conducting a feedback data collection program using structured interviews and (2) summarizing and using the data for curriculum evaluation. These steps are discussed in detail in the subsequent paragraphs.

1.0 PLAN DATA COLLECTION AND UTILIZATION. Command level "planning" to implement and conduct an effective training appraisal program using the recommended structured interview procedure should be directed at:

- assignment of responsibilities to project personnel and delegation of commensurate authority
- overall cognizance of data collection/analysis activities
- monitoring utilization of the data to insure appropriate course revisions based on the data
- followup on course revision recommendations when approval is required at higher level.

Staff functions required concern project coordination, development of data collection instruments, student screening/control, interviewing, data analysis, and curriculum revision. Each of these functions are discussed below.

1.1 DESIGNATE PROJECT COORDINATOR. The structured interview method was designed to be straightforward but sufficiently flexible for adaptation to diverse training commands. The positions of authority, as well as the technical skills, most useful for adapting the method to a specific command may be associated with personnel in several departments or divisions. A relatively senior individual should be designated as command coordinator. Appropriate authority for access to and use of necessary personnel should be delegated to that individual. The CIS officer is recommended for project coordination because: (1) the development and use of training appraisal procedures are already a responsibility of this office and (2) CIS officers normally have well established interdepartmental relationships. The coordinator's interest/need for the feedback data will facilitate close, continuing coordination of other functions described below.

1.2 DESIGNATE INSTRUMENT DEVELOPMENT PERSONNEL. The procedures recommended do not require personnel thoroughly trained in instrument development or data analysis. The most difficult job will be to develop suitable task statements for use on the survey instruments. It is recommended that individuals who are thoroughly familiar with the course be tasked to develop the necessary job task statements. It is also recommended that the same personnel who develop the instruments also be tasked to accomplish the data analysis. This is suggested in order to achieve a match between instrument design/data gathered and the devised analysis scheme.

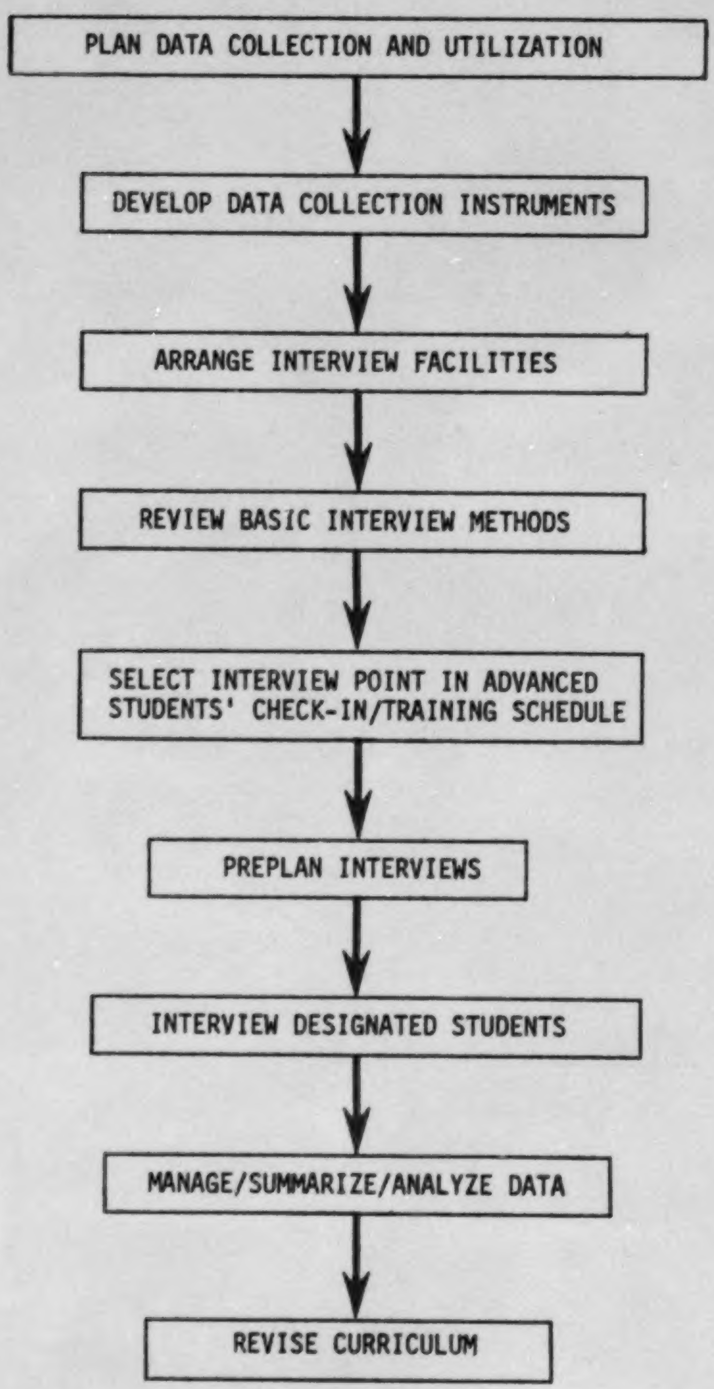
PLAN DATA COLLECTION AND UTILIZATION
DEVELOP DATA COLLECTION INSTRUMENTS
ARRANGE INTERVIEW FACILITIES
REVIEW BASIC INTERVIEW METHODS
SELECT INTERVIEW POINT IN ADVANCED STUDENTS' CHECK-IN/TRAINING SCHEDULE
PREPLAN INTERVIEWS
INTERVIEW DESIGNATED STUDENTS
MANAGE/SUMMARIZE/ANALYZE DATA
REVISE CURRICULUM

Figure A-1. Major Steps Involved in Planning, Conducting, Analyzing, and Using Training Feedback

Based on the experiences gained in the prototype evaluation, school staff personnel tasked with curriculum writing/development functioning under the general supervision of command CIS personnel are recommended.

1.3 DESIGNATE STUDENT SCREENING/CONTROL RESPONSIBILITIES. Steps should be taken to insure that all possible interview candidates are routinely screened and, if qualified, interviewed. It is recommended that this function be assigned to personnel who are in charge of the advanced students either during check-in or after convening of their class. Previous experience has shown that this is usually the director of the school offering the course, and that the director is best represented for this purpose by a selected course instructor or learning supervisor.

1.4 DESIGNATE INTERVIEWER(S). Senior military instructors who are from the same rating(s) as the individuals being interviewed, and who are also assigned to the school staff, are recommended for the interviewing task. Based on experience gained in the study program, senior petty officer instructors were enthusiastic about improving both their school's courses and the expertise of sailors in their own rating. They were particularly effective interviewers in terms of the number and specificity of amplifying remarks collected.

1.5 DESIGNATE DATA ANALYSIS PERSONNEL. As indicated in 1.2 above, it is recommended that the same personnel who develop the data collection instruments also analyze the data collected.

1.6 DESIGNATE CURRICULUM REVIEWER(S). Generally, curriculum review is an ongoing function at every training command and further selection of personnel is unnecessary. Those individuals who have this responsibility should be made aware of the feedback project and the availability of the data for course review.

2.0 DEVELOP DATA COLLECTION INSTRUMENTS. Instrument development requires selecting job tasks for which training will be evaluated and designing interview forms and associated procedures for their use. Interviewee background data forms should also be developed to collect information concerning the experience of the interviewees. Reason Codes are also helpful for data analysis and may be developed for use as a fourth "instrument." These items are discussed in more detail below.

2.1 SELECT JOB TASKS FOR TRAINING EVALUATION. Job tasks for evaluation may be selected from existing job task lists or may be derived from the learning objectives of the course. The items on the NAVEDTRACOM Training Appraisal System (TAS) Level II questionnaires comprise one source of job task statements. Two other possible sources of job task lists are discussed below. In addition, guidance is offered (see attachment 1) concerning the screening of established job task lists and/or development of new job task statements should that be necessary/desirable.

The TAS Level II questionnaires, NOTAP Job Task Inventory, and course curriculum comprise the three main options for selection of job task statements. These are discussed below:

1. TAS Level II Questionnaires. The job task statements on a given TAS Level II questionnaire reflect what a student is taught in a particular course. These questionnaires will already be familiar to many fleet personnel who have been involved in TAS Level II evaluations. If available, the job task statements used on these questionnaires are recommended as the basis for job task statements to be used on the interview instruments.

2. NOTAP Job Task Inventory (JTI). The latest NOTAP JTI for the rating(s) (and rate, as appropriate) also contains information about the actual job tasks required of recent school graduates in the fleet. Job task statements for use on the interview form may be extracted from these lists. It must be recognized, however, that JTIs are lengthy and contain all types of work performance (e.g., administrative, military) in addition to technical training related job tasks. These lists will require an initial screening to select technical tasks of the specialty. A second screening may be required to eliminate technical tasks performed by less than 20 percent of recent school graduates. This is recommended to avoid producing an instrument which would lead to an unacceptably long interview. Note also that the JTIs reflect the job performance of personnel in each rating by rate. It is thus necessary to insure that the JTI for the (approximate) rates of recent graduates is selected.

3. Learning Objectives. The learning objectives of the curriculum being evaluated comprise one other source of possible job task statements. Use of this source, however, requires that considerable effort be expended to write job task statements. For example, shortening of learning objectives, translating or converting theory oriented learning objectives to corresponding job task statements, and screening for learning objectives for nonoperational equipment used only for training purposes are frequently required. For these reasons, the formulation of new job task lists from course learning objectives is recommended only when both the TAS Level II questionnaire and NOTAP JTI are judged unacceptable.

2.2 DESIGN INTERVIEW FORMS/PROCEDURES. Design of the interview forms involves devising a specific data collection format, instructions to the interviewees, and general instructions to the interviewers concerning interview procedures. These matters are discussed below.

2.2.1 DEVISE SPECIFIC FORMAT. A recommended survey form is contained in the Interview Kit as attachment 2. It is similar to the one used in the TAEG study program. It should be noted that the three categories of feedback solicited about graduates' job task performance (i.e., Do With Ease, Do With Difficulty, or Don't Do) refer to the job behavior of recent graduates under general supervision. The recommended instructions to the interviewee (see page 73) reflect this basic concept. Three alternate sets of choices for categorizing graduate performance are contained in table A-1. Other sets of categories can be devised to meet specific information needs and desired data analysis schemes. It should be noted, however, that the following sections of this report dealing with data analysis reflect the use of the recommended categories only.

TABLE A-1. ALTERNATE SETS OF GRADUATE PERFORMANCE DESCRIBERS WITH SOURCE/PRIOR APPLICATION

| Option | Graduate Performance Describers | Source/Prior Application |
|---|---|---|
| 1 | Don't Do<br>Do With Difficulty<br>Do Adequately With Close Supervision<br>Do With Ease | Suggestions from some interviewers and interviewees in the study program |
| 2 | Training Less Than Adequate<br>Adequate<br>More Than Adequate<br>Task Not Observed | CNET Training Appraisal System |
| 3 | Task Not Observed<br>Can Not Do<br>Can Do With Supervision<br>Can Do Without Close Supervision | TAEG's informal experience in identifying state of training in selected Naval Reserve Units |

2.2.2 DEVELOP INSTRUCTIONS TO INTERVIEWERS. This step involves developing specific instructions for organizing and completing each interview in order to insure standardization of procedure and correct use of the interview form. Attachment 2 contains recommended "Interview Instructions" which are patterned after those used successfully in the study program. These instructions can be amended as necessary to meet individual command needs.

2.3 DEVELOP BACKGROUND DATA FORM. The Background Data Form should elicit enough information about the advanced students to determine how well they represent the larger fleet group. Relevant questions might concern the advanced students' most recent tour (i.e., whether or not it was sea or shore, type ship/squadron, and type of equipment he or she worked on or operated). The Background Data Form may also be used to seek answers to questions that may be useful to the training command but that may not pertain to a specific job task. This information might relate to technical training or military training, in general. It is recommended, however, that the Background Data Form be limited to one page in order to facilitate its use in a classroom as a screening instrument for selecting the particular advanced students who will be interviewed. A key question that should appear on any background data form should be similar to the following: "In the last 12 months, have you had an opportunity to observe and evaluate recent ____ school graduates in operational assignments?" Followup questions that should be asked include, "If you answered 'Yes' to the previous question, how many people did you observe and evaluate? For how long?" These questions are essential to establish whether or not an advanced student has, in fact, observed, in an operational assignment, the job performance of recent graduates of the course being evaluated. Attachment 2 contains a sample Background Data Form. Additional questions can/should be added as needed.

2.4 DEVELOP REASON CODE FORM. Reason Codes are developed to reflect possible explanations concerning why recent graduates might have had performance difficulties or might not have performed a particular task at all. Reason Codes will tend to be largely rating specific; however, there are some Reason Codes that have meaning in many different ratings. Attachment 2 contains a list of Reason Codes that may be applicable to many ratings. Reason Codes are provided for both the "Don't Do" category and the "Do With Difficulty" category. Reason Code forms may/should reflect the Reason Codes from this list that are deemed helpful in categorizing training appraisal feedback, as well as other locally developed Reason Codes.

3.0 ARRANGE INTERVIEW FACILITIES. It is important that at least part B of the Interview Form be completed privately by the interviewer and interviewee. If possible, a private office should be reserved for the interview. This provision may affect the attitude and motivation of the person being interviewed concerning the importance of the task and, consequently, the degree of "effort" he will put into his contribution. A nicely furnished office in a prominent part of the building will aid in giving the impression that what the advanced student is doing is very important and that his full cooperation/contribution is vital.

4.0 REVIEW BASIC INTERVIEW METHODS. The productivity of training appraisal interviews is generally aided by interviewer preparation and practice. Invariably, the selected interviewers will have had experience with some type of interview situation. Nevertheless, review of attachment 3 is recommended to refresh and focus interviewer skills on the training appraisal task. In addition, practice interviews using draft data collection instruments will provide experience with the specific setting and population concerned. Attachment 3 contains a concise review of military training appraisal interview procedures. Several other salient points about interviewing are addressed here. The interviewer must accept that the respondent is the best "expert" concerning his/her own ideas and opinions and that the object of the interview is to learn about the respondent's ideas and opinions. As much as possible, these ideas and opinions should be captured in the respondent's own words. Sometimes the interviewee's first response is general in nature, and it may be necessary to ask probing questions to get at specific skills which are performed less adequately. Settling for just the name of a topic that "needs more emphasis" provides little help to curriculum writers. In this situation, it may be necessary to ask specific questions such as, "Do they perform this task too slowly?" in order to get at the actual skill(s) that needs to be taught differently or more thoroughly. On the other hand, when the initial response is wordy and contains a great deal of information, it may be necessary to summarize and clarify, trying to restate the essence of the statement in a more succinct and usable form. In doing so, however, it is important to avoid questions that bring up issues that were not raised by the respondent. The interviewer should not do anything to prejudice the respondent's remarks such as arguing about the accuracy of the data or asking slanted questions to see if the respondent has the same opinion as the interviewer about some particular issue. It is often helpful to read back to the respondent what has been written down to test the accuracy of impressions. Phrases, words, and sentences that tend to occur more frequently in productive interviews are:

I understand you to say...
Do you mean that...
In other words...
Could you tell me specifically what behavior the graduate does not perform adequately...
Let me see if I understand...
I'm confused about that point; could you restate it for me...
Hmmmm...I see...
Let me think about this for a minute...
Tell me more about that...

Words, phrases, and sentences that tend to arise in unproductive interviews are:

I don't understand you...
Do you really think that...
I disagree...
Don't you think that...
That's confusing; say it again...
What you really mean to say is...
Did you have the same problem I did with getting them to do...

It is vital to remember that the respondent is the expert on his/her own ideas and opinions. The interviewer's job is to aid in the expression of his/her ideas and, thus, obtain specific information concerning the need for and nature of possible curriculum changes. This means obtaining and recording information about skills and knowledge which at some point can be associated with a specific terminal or enabling objective of a course's curriculum.

5.0 SELECT INTERVIEW POINT IN ADVANCED STUDENTS' CHECK-IN/TRAINING SCHEDULE. Early contact with the NAVEDTRACOM advanced students is recommended to maintain their credibility as fleet representatives. Scheduling the interview during the check in process, or during the period prior to or shortly after the course convening date, will generally meet this requirement.

6.0 PREPLAN INTERVIEWS. It is necessary to determine which NAVEDTRACOM advanced students are "qualified" to provide information about the adequacy of a school's training for the fleet. Criteria should be established concerning the degree of opportunity to observe recent school graduates on the job in operational assignments and the recency and length of this observation. All "qualified" individuals should be scheduled for interviews. In addition, a purposeful attempt should be made to encourage interviewee cooperation and enhance his/her motivation for the interview.

6.1 SCREEN INTERVIEWEES. The Background Data Form (see attachment 2) is recommended for use in student screening. A "yes" answer to the question concerning opportunity to observe recent school graduate performance on the job is a prerequisite for consideration. Ensuring that all advanced students in the designated rating(s) are screened will result in the maximum number of individuals being interviewed and the most data available collected.

6.2 SELECT INTERVIEWEES. Meeting established criteria for numbers of recent graduates observed, and duration of observation, is necessary for inclusion of a student in the interview sample. In the TAEG study program, all individuals were selected for interview who had observed at least one recent graduate for at least 3 months. Individuals from the U.S. Marine Corps and other services who met this criterion were also included. No further criteria were established concerning, for example, USN versus USNR, male versus female, or senior versus junior petty officer.

6.3 SCHEDULE INTERVIEWS. Individuals identified as "qualified" should be scheduled for their interview to occur as soon as possible after their arrival at the school. This is considered necessary to avoid continued exposure to training command "problems" which may bias their responses.

6.4 INSURE DESIGNATED INTERVIEWEES ARE INTERVIEWED. A simple system to maintain accountability for reporting will help prevent possible lost interviews/data. Many ratings have a low throughput of advanced students and the loss of eligible interviewees can result in a considerable decrease in data. Conversely, in ratings where the throughput is high, a sample of all eligible interviewees might provide sufficient data.

6.5 ENCOURAGE SELECTED INTERVIEWEES TO CONTRIBUTE AS MUCH AS POSSIBLE. Most sailors, regardless of their current attitude about Naval service, are usually deeply proud of their particular work and rating and tend to identify strongly with the community of individuals in that rating. This can be a strong help in soliciting their cooperation and help in getting information that will improve training for their rating.

7.0 INTERVIEW DESIGNATED STUDENTS. Detailed procedures for conducting interviews are contained in attachments 2 and 3. Other suggestions were provided under several of the preceding steps. Familiarity with these materials and completion of practice interviews should make conduct of the actual interviews straightforward. Consequently, no further guidance in this area is provided in the body of the text. Once interviewing begins, however, continuing effort is necessary to insure that the maximum amount of useful data is collected. The effort required is described below.

7.1 MAINTAIN OPEN COMMUNICATIONS WITH SCREENING PERSONNEL. Open communications with screening personnel should be maintained to preclude lost data due to reasons such as scheduling confusion or undesirable time constraints.

7.2 TRANSMIT INTERVIEW FORMS TO DATA ANALYSIS PERSONNEL. It is recommended that data be processed on an "as-collected" basis. This will allow routine inspection of the data to determine possible emerging training problems and to identify specific areas for further detailed inquiry during subsequent interviews.

8.0 MANAGE/SUMMARIZE/ANALYZE DATA. Obtaining maximum benefit from the feedback data collection program requires proper management, summarization, and analysis of all data collected. Recommended procedures for these efforts are provided below.

8.1 MANAGE DATA. Management of the data involves accurate and timely compiling of information collected, as well as monitoring the degree of fleet representativeness of the interviewees and the quality of interview data being collected.

8.1.1 COMPILE DATA. Interviewee Background Data as well as actual interview data must be recorded.

8.1.1.1 MAINTAIN FILE OF ALL COMPLETED BACKGROUND DATA FORMS. It is recommended that a file of Background Data Forms for all individuals screened be retained at the school. This information is of immediate concern in determining the percentage of advanced students in the selected ratings actually eligible for interview and in determining the fleet representativeness of the group of advanced students interviewed. The background information might also be useful to advanced course managers in determining student profiles and assessing advanced course curriculum needs.

8.1.1.2 RECORD INTERVIEW DATA. Careful recording of the interview data is required to maintain integrity of the data base and to permit ready summarization for subsequent analysis. A Data Collection Worksheet form that can be used to record interview data about each job task listed on the Interview Form is contained in figure A-2. The number of the task (from the Interview Form) and its name should be written across the top. Space is allocated on the worksheet to tabulate the number of times the interviewees classified performance of the task as "Do With Ease," "Do With Difficulty," or "Don't Do." In addition, space is provided to tabulate Reason Code selections for tasks judged to be in the "Don't Do" or "Do With Difficulty" categories. Finally, all comments made by interviewees pertaining to each task--either to clarify why particular Reason Codes were selected or to add amplifying information--can be recorded on the back along with the Reason Codes that accompanied the remarks. Comments received in response to the open-ended question at the end of the Interview Form should probably be compiled separately on blank sheets of paper so that those statements will not be confused with specific statements made in response to a given job task. Also in the interview the importance attached to more spontaneous general comments may be different; they may require separate treatment/consideration.

8.1.2 MONITOR DATA BASE. All interview data received should be routinely reviewed to identify nonproductive interview techniques which may require remediation (e.g., unclear or nonspecific comments). In addition, even cursory review of the data may also suggest trends in graduate performance information that may not be apparent to individual interviewers. Alerting interviewers about such trends may facilitate collection of more useful data in that area.

8.1.3 DETERMINE REPRESENTATIVENESS OF INTERVIEW SAMPLE. The background data on interviewees should be examined to determine how well the interviewed group represents the larger fleet group. This

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TASK (Name and Interview Form number):

---

Number "Do With Ease" Selections:

---

Number "Don't Do" Choices and "Don't Do" Reason Code Selections:

Don't Do Choices:

Reason Codes:

A

B

C

D

---

Number "Do With Difficulty" Choices and "Do With Difficulty" Reason Codes Selections:

Do With Difficulty Choices:

Reason Codes

E
F
G
H
I
J
K
L
M
N
O
P

Q
R
S
T
U
V
W
X
Y
Z
AA
BB

CC
DD
EE
FF
GG
HH
II
JJ
KK
LL
MM
NN

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Figure A-2. Recommended Data Collection Worksheet

REASON CODES WITH CORRESPONDING COMMENTS:

| Reason Code(s) | Comments |
|---|---|
| | |

Figure A-2. Recommended Data Collection Worksheet (continued) assessment will assist in making a decision about when, or if, to terminate data collection. Data collection should continue until it is believed that the data collected from the interviewed students would not differ substantially from that which could be gathered from their counterparts still serving in operational fleet billets. This determination is a function of a subjective appraisal of interviewees' breadth, depth, and recency of experience with recent graduates. The data with which to make this appraisal are obtained from compiling the information on the Background Data Forms. Frequency counts of the answers to most questions will suffice; however, average years service, average number of recent graduates observed, and average number of months observed are helpful computations. Further analysis of data should be based on data deemed credible; otherwise, collection of additional data is required until credibility concerns are allayed.

8.2 SUMMARIZE DATA. Data summarization involves primarily calculating the percentage of interviewee response choices in several key categories which are important to various data analysis methods. The data analysis methods are discussed in a subsequent section of this appendix. Procedures for calculating selected percentages are explained and demonstrated below.

8.2.1 CALCULATE GRADUATE UTILIZATION PERCENTAGES. The graduate utilization percentage reflects the degree to which recent graduates are used to perform the job tasks at the work centers represented by the interviewees. The utilization percentage is calculated for each job task by dividing the sum of all "Do With Ease" and "Do With Difficulty" responses by the total number of responses and multiplying by 100. Figure A-3 contains a sample computation. For between task comparison purposes the job task statements may be listed/ranked on the basis of the utilization percentage.

8.2.2 CALCULATE TRAINING PROFICIENCY PERCENTAGES. The training proficiency percentage reflects the degree to which recent graduates, under routine supervision, are performing their assigned tasks with ease. This should be calculated for each task in order to make judgments about instructional effectiveness. The Data Collection Worksheet information is used for this. The worksheet information also helps sort out those performance difficulties not attributable to training. The training proficiency percentage is calculated for each task by dividing the "corrected" number of "Do With Ease" selections by the sum of all "Do With Ease" and "Do With Difficulty" responses and multiplying the quotient by 100. The "corrected" number of "Do With Ease" selections is calculated by adding to the actual number of "Do With Ease" selections any "Do With Difficulty" selections for which the Reason Code/Remarks recorded indicate the difficulty is predominantly a function of job environment. The Reason Codes in the "operational" category (see annex D of attachment 2) probably reflect environmental factors more so than training factors. Reason Codes in the "Personal" category (motivation, personal adjustment) also probably reflect environmental factors even though individuals' initial assignments in NAVEDTRACOM admittedly may have some effect on subsequent job motivation/adjustment. "Do With Difficulty" selections with these Reason Codes should be classified "environmental" rather than "training" related unless specific remarks suggest otherwise. Figure A-4 contains a sample computation of a training proficiency percentage. For between task comparison purposes, the job task statements may be listed/ranked on the basis of training proficiency/percentages.

8.2.3 CALCULATE REASON CODE SELECTION PERCENTAGES. Reason Code selection percentages are calculated separately for "Don't Do" and "Do With Difficulty" Reason Code groups. This is necessary because the computations are slightly different due to the tendency of the "Don't Do" codes to be mutually exclusive resulting in a single Reason Code choice for each "Don't Do" response. On the other hand, the "Do With Difficulty" Reason Codes are not mutually exclusive and multiple Reason Code selections for each "Do With Difficulty" choice are common.

8.2.3.1 CALCULATE "DON'T DO" REASON CODE SELECTION PERCENTAGES. The selection percentage of each Reason Code can be derived by counting the frequency of selection of each Reason Code category (or omission) across all tasks for all respondents and dividing that number by the frequency of the "Don't Do" selections across all tasks for all respondents.

8.2.3.2 CALCULATE "DO WITH DIFFICULTY" REASON CODE SELECTION PERCENTAGES. The selection percentage for each Reason Code is derived by counting the frequency of selection of each Reason Code category across all tasks for all respondents and dividing that number by the sum of the frequency of "Do With Difficulty" Reason Code selections and the frequency of "Do With Difficulty" selections without Reason Code(s) across all tasks for all respondents.

8.3 ANALYZE DATA. There are at least three possible techniques that can be used to analyze the data collected and determine their implications and meaning for possible course revision. All three add important and unique dimensions to the interpretation of the data and should be considered/used. The basic method involves

Data Collection Worksheet information for job task statement number 14 (Tie nautical knots):

Do With Ease: 15

Do With Difficulty: 13

Don't Do: 8

Total Responses: 36

$$\text{Utilization Percent} = \frac{(\text{Number Do With Ease} + \text{Number Do With Difficulty})}{\text{Number Total Responses}} \times 100$$

$$\text{Utilization Percent} = \frac{(15 + 13)}{36} \times 100$$

$$\text{Utilization Percent} = (.778) \times 100 = 77.8$$

Figure A-3. Sample Utilization Percentage Computation

Data Collection Worksheet information for job task statement number 14 (Tie nautical knots):

Do With Ease: 15

Do With Difficulty: 13

Do With Difficulty Selections Determined "Not Training Related": 3

Don't Do: 8

Total Responses: 36

Training Proficiency Percent =

$$\frac{\text{Corrected Number Do With Ease}}{(\text{Number Do With Ease} + \text{Number Do With Difficulty})} \times 100$$

(Corrected Number Do With Ease = Number Do With Ease + Number Do With Difficulty Selection Determined "Not Training Related")

$$\text{Training Proficiency Percent} = \frac{18}{(15 + 13)} \times 100$$

$$\text{Training Proficiency Percent} = (.643) \times 100 = 64.3$$

Figure A-4. Sample Training Proficiency Percentage Computation direct use of the utilization percentages and training proficiency percentages to make respective judgments about course relevancy and training effectiveness. A second method features careful review, by subject matter experts, of each interviewee comment, each task's Reason Code frequency distribution, and the overall Reason Code selection percentages. The third method involves the use of an experimental matrix method to display graphically the relationship of training adequacy data to task importance data. These three data analysis methods are described below.

8.3.1 USE UTILIZATION AND TRAINING PROFICIENCY PERCENTAGES TO ASSESS RELEVANCY OF COURSE CURRICULUM AND ADEQUACY OF TRAINING. The utilization percentage indicates the degree to which recent graduates are actually employed at the tasks for which they received training. This bears on the relevancy of the course. In a similar manner, training proficiency percentages indicate the degree of ease with which graduates perform the tasks for which they were trained. This is related to the training adequacy of the course. Both course relevancy and training adequacy are discussed in this section.

8.3.1.1 DETERMINE COURSE RELEVANCY. Specific criteria for making absolute judgments about course relevancy from data collected with this method do not exist; consequently, experimental criteria for assessing the relevancy of training at individual tasks were arbitrarily established and used in the prototype study. Judgments about course relevancy can then be made based on a review of training relevancy data for individual job tasks. Criteria for high, moderate, and low relevancy for individual task training, using utilization percentages, are contained in table A-2.

TABLE A-2. EXPERIMENTAL RELEVANCY CRITERIA

| Task Utilization Percentage | Experimental Relevancy Criteria |
|---|---|
| 75 - 100 | High |
| 50 - 74 | Moderate |
| 0 - 49 | Low |

The assignment of these experimental criteria is based on the following:

HIGH

A high utilization value could/should be assigned if three-fourths or more of the respondents report that recent graduates are employed at a particular task. It is assumed that it is highly necessary that appropriate training be provided in the course.

LOW

A low utilization value could/should be assigned if less than half of the respondents indicated "their" graduates are employed at the task. It is assumed that these tasks are, on the whole, the least critical for formal training and that with limited time and personnel resources they could be considered as candidates for a reduction of training attention.

MODERATE

A moderate utilization value was assigned arbitrarily for any utilization percent between "high" and "low."

Good judgment is required in using utilization percentage data as a basis for course change. Some job tasks may, in fact, be infrequently performed but permit little tolerance for error or delay when they must be performed (e.g., life saving tasks, emergency responses). The experience and judgment of course managers should prevail in matters of this kind. The proposed arbitrary experimental labels and suggested conclusions are offered as guidelines only.

8.3.1.2 DETERMINE INSTRUCTIONAL EFFECTIVENESS. Instructional effectiveness is related to, but not defined by, the degree of ease with which graduates perform the tasks for which they were trained. The ease of job task performance is, however, a main consideration and the data collected from interviews can be used to make tentative judgments about course effectiveness. As with course relevancy, specific criteria for making absolute judgments about instructional effectiveness from data collected with this method do not exist. Consequently, experimental criteria were arbitrarily established and utilized in the prototype study. "Criteria" for high, moderate, and low training effectiveness for individual task training, using training proficiency percentages, are contained in table A-3.

TABLE A-3. EXPERIMENTAL EFFECTIVENESS CRITERIA

| Task Training Proficiency Percentage | Experimental Effectiveness Criteria |
|---|---|
| 75-100 | High |
| 50-74 | Moderate |
| 0-49 | Low |

The assignment of the experimental criteria is based on the following considerations:

HIGH

A high training adequacy value could/should be assigned if three-fourths or more of the respondents report that recent graduates with general supervision performed the task with ease (or did not have training related difficulties). It is assumed that there is no significant training problem. This "decision" was supported in part by the fact that the SMEs who evaluated usefulness of feedback data in the TAEG study program generally reached consensus that no performance/training problem existed if at least 70 to 75 percent of the respondents reported their graduates performed a task with ease.

LOW

A low training adequacy value could/should be assigned if over half of the respondents indicated "their" graduates performed a task with difficulty (and the difficulties were training related). It is assumed that training is inadequate for tasks in this category.

MODERATE

A moderate value is assigned arbitrarily for any task rated between high and low.

Using the same reasoning as with the course relevancy analysis, the labels proposed in this section, and conclusions drawn from them, should be used as guidelines only.

8.3.2 USE SUBJECT MATTER EXPERTS TO PINPOINT SPECIFIC CURRICULUM STRENGTHS/WEAKNESSES. Review of training adequacy data by subject matter experts is essential for determining the specific strengths and weaknesses of a course. Subject matter experts can provide the depth of understanding/interpretation that mathematical analysis schemes can not accomplish. Both the tone and the technique of the SME review are important for maximum benefit to course evaluation and the instruction future students will receive.

The tone of the data analysis must be balanced and professional. It must be both reinforcing of the successes that the training managers and instructors are enjoying and objectively and professionally critical of areas where course improvement is clearly required. Such a balanced interpretation of training feedback data will help prevent inadvertent undermining of curriculum strength in an attempt to improve areas of instructional inadequacy. Through avoidance of over negativism, it will also help minimize personal/organizational defensiveness which can hamper training improvement by fostering denial or rationalization of negative training feedback and/or feedback gathering methods.

A positive and professional tone coupled with any logical technique for SME data analysis will probably provide useful data for course assessment/improvement. The technique described/recommended below is a reflection of "lessons learned" in the prototype study taken "one step beyond." It is a process which should be tried and then modified/improved to suit each command's unique needs. The SMEs must determine in an overall way the job task areas that do not pose any significant training problem(s) as well as the precise nature of the performance problem(s) actually uncovered by the data. Based on the detailed appraisal of performance problem information, the SMEs must define the training problem in terms of what students are failing to learn and then recommend where (i.e., in which segment(s) of the training pipeline) remediation is most appropriate.

8.3.2.1 DESIGNATE SMEs. Approximately five SMEs should be selected in order to insure the data are interpreted by a broadly experienced but yet manageable group of individuals. The SMEs knowledge of the complete training pipeline is also important. Ideally, the SMEs should be drawn from the staff of the school that teaches the course under evaluation and from representative commands in other segments of the training pipeline. This includes a fleet supervisor who can represent the point of view of the on-the-job trainer. Reviews of courses that are basic to a rating (e.g., "A" courses) might benefit from including the complementary correspondence course/rate training manual writer in the group of SMEs.

Correspondence courses and rate training manuals may be seen as one segment, or portion of the on-the-job training segment, of the training pipeline.

8.3.2.2 REVIEW INTERVIEW DATA. The procedures selected/recommended for SME review of the data are designed to maximize the quality/usefulness of their efforts both as individuals and as a group/panel. They should result in a well thought out, well discussed, clear set of recommendations to training managers.

The SMEs should be furnished a summary of the feedback data for each job task showing:

- frequency counts for all interviewee choices
- utilization percentages
- training proficiency percentages
- all interviewee comments.

In addition, each SME should have the overall Reason Code selection percentages.

Each SME should evaluate the training feedback individually on a task by task basis completing a worksheet for each job task similar to the sample in figure A-5. Use of the worksheet requires that the SME complete the following steps:

a. Determine if the data implies a significant performance problem.

b. If no performance problem is ascertained, indicate which segments of the training pipeline could possibly benefit from the feedback and go on to the next task.

1. PERFORMANCE ASSESSMENT: (check the appropriate box; if a or b is selected complete only section 3.)

   ☐ a. Data suggest little difficulty in performance; therefore no training problem is apparent.

   ☐ b. Data suggest difficulty in performance, but do not imply training is the primary cause of difficulty.

   ☐ c. Data suggest difficulty in performance which may be related, in part, to a training problem.

2. PROBLEM DESCRIPTION:

   a. Performance problem: (Define in specific behavioral terms what recent graduates are not doing properly on the job. Example: Recent graduates log out classified publications incorrectly, leave sensitive equipment in unlocked spaces, and leave confidential MRC cards lying around.)

   b. Training/learning problem: (Define in specific behavioral terms what students are apparently having trouble learning. Example: Students are not remembering basic rules for insuring security to classified equipment and documents (MRC cards, in particular); they are not learning to include time for proper handling of classified material in their work plans; they are not developing an attitude of appreciation for proper security precautions.)

3. RELEVANCE OF DATA: (Check the appropriate box for each segment of the training pipeline.)

| TRAINING PIPELINE: | Feedback data unimportant and/or irrelevant to this part of pipeline; no action warranted | Feedback data might be helpful to this part of pipeline and data should be distributed thereto | Feedback data moderately important to this part of pipeline and should be considered during the next regular review | Feedback data very important and a revision or modification should be considered at this time |
|---|---|---|---|---|
| RTC | | | | |
| BE/E | | | | |
| FT A1 Ph I | | | | |
| FT A1 Ph II | | | | |
| FT C Level | | | | |
| FT 3 & 2 Manual | | | | |
| FT 3 & 2 Course | | | | |
| OJT | | | | |
| FLETRACEN | | | | |

Figure A-5. Sample SME Data Analysis Worksheet

c. If a performance problem is determined:

(1) Define the problem in specific behavioral terms (i.e., what is the graduate doing improperly or not doing).

(2) Define the learning problem in specific behavioral terms (i.e., what is the graduate not learning in the course).

(3) Determine which segment(s) of the training pipeline should attempt to remediate the learning problem, and the urgency of remediation.

Following individual assessment of the data, the SMEs should meet as a group/panel and discuss their individual conclusions. The panel should be instructed to achieve a consensus about the definition of the performance and learning problems as well as the recommended location(s) in the pipeline for remediation and the urgency of remediation. This can be accomplished by completing the same worksheet as a group/panel on a task by task basis as each SME did individually. The process of consensus usually assures careful discussion, exploration of differences of opinion, and, in general, an in-depth analysis of the data. It avoids some of the pitfalls of reliance on just one senior SME who will inevitably have his/her own biases, and it avoids the often confusing display of frequency distribution data/votes that a simple comparison of individual analyses might yield.

When SME consensus about the data is reached, it is clear which performance problems have been uncovered by the data, what the corresponding learning problems are, and where in the training pipeline remediation is most appropriate.

Two questions remaining are which of the learning problems should be addressed first (i.e., the prioritization problem) and how to correct the learning problem (i.e., the curriculum revision problem). Solutions to the prioritization problem were partially met through the panel discussion on the urgency of remediation.

The next section explores an additional technique for prioritizing the use of training remediation resources. Section 9.0 provides experimental guidelines for creating curriculum change.

8.3.3 DERIVE EXPERIMENTAL MATRIX. The feedback information obtained from the interviews may identify a number of job tasks as possibly "undertrained." This identification is based on the single dimension (variable) of performance adequacy as reflected by the ease/difficulty with which graduates perform tasks. In many instances, it may not be possible to correct, with available resources, all areas of "undertraining" that are revealed by feedback data. In such cases it may be desirable to identify those areas of deficiency most in need of training attention. Also, within a circumscribed resource system, it may be desirable to identify training areas from which resources can be diverted to correct deficiencies. One technique that can be used for achieving these goals involves determining and assessing the relationship(s) between variables that are equally important to decisions about training. For example, knowledge of relationships between how well individuals can perform a task(s) on the job and how important it is that they be able to perform it can be used to aid significantly decisions about how to use training resources.

A matrix was developed by TAEG for assessing the interview data. The method is based on suggestions made by Siegel, Schultz, and Federman (1961). Determining undertrained/overtrained tasks involves relating ratings of graduates' adequacy of performance to estimates of the relative importance of specific tasks to the accomplishment of the job. A basic assumption underlying use of the method is that highly critical tasks should be trained to a high level of proficiency while less proficiency can be tolerated on less critical tasks. Tasks that are performed poorly in relation to their importance are assumed to be undertrained. Tasks which are performed well on the job but which are relatively unimportant are assumed to be overtrained.

Application of the method requires the assignment of performance adequacy indexes (values) and importance or "criticality" indexes to the various job tasks. Performance adequacy indexes assigned are based on the percent of respondents reporting that the graduates in their work centers either did a task with ease or had no training related difficulties. The assumption is made that the respondents' judgments are valid indications of adequacy of graduate performance on the job. "Criticality" indexes assigned are based on degree of graduate utilization at each task. The assumption is made that this is a useful measure of criticality. It is acknowledged that graduate utilization to perform tasks may not hold as a valid indicator of criticality in all situations. Those tasks for which there are important consequences of first-performance-failure (e.g., emergencies) may be just one instance of overriding considerations. Utilization frequency, as a measure of criticality, however, still may provide an important contribution to making cost effective decisions about the expenditure of training resources.

There are three possible performance adequacy indices and three corresponding criticality indices--"high," "moderate," and "low." The performance adequacy index is based on the training proficiency percentage, and the criticality index is based on the utilization percentage (see steps 8.2.1 and 8.2.3). The indices are related directly to the experimental criteria developed for the separate assessments of course relevancy and instructional effectiveness and the rationale for assignment of values is the same (see tables A-2 and A-3). Table A-4 contains the basis for assignment of performance adequacy indices.

TABLE A-4. PERFORMANCE ADEQUACY INDICES

| Training Proficiency Percentage | Performance Adequacy Index |
|---|---|
| 75-100 | High |
| 50-74 | Moderate |
| 0-49 | Low |

Table A-5 contains the basis for assignment of criticality indices.

TABLE A-5. CRITICALITY INDICES

| Utilization Percentage | Criticality Index |
|---|---|
| 75-100 | High |
| 50-74 | Moderate |
| 0-49 | Low |

The performance adequacy and criticality indices are determined for each task listed in the interview survey. The survey task numbers are then listed in the cell of the matrix corresponding to the indices assigned to that task. Figure A-6 contains the experimental training assessment matrix. Figure A-7 contains a sample derivation of indices, and figure A-6 contains the correct plot of the sample job task.

The cells of the matrix show five possible assessments of training for a specific job task:

- significant undertraining
- moderate undertraining
- optimal training
- moderate overtraining
- significant overtraining.

Tasks falling into the optimal training cells reflect the principle that when the performance adequacy index value matches the criticality index value the task has been optimally trained. When the performance adequacy index is higher than the criticality index, some overtraining may have occurred. When the performance index is lower than the criticality index, undertraining may have occurred.

Thus, the matrix method classifies tasks as being optimally trained, significantly or moderately undertrained, and as being significantly or moderately overtrained. This classification may assist prioritization of training remediation resources.

9.0 REVISE CURRICULUM. The Instructional Systems Development (ISD) model used within the NAVEDTRACOM requires the use of external (and internal) feedback to determine the nature of training problems. It directs corrective action to be applied at the particular point in the systematic process that provides the technical procedures required to solve the problem. Curriculum change for a specific course is a highly individualized process that is a function, in part, of command prerogative, technical expertise, professional creativity, physical facilities, funding, complex organizational support hierarchies, and a variety of other unpredictable influences. It is thus impossible to specify precise universal procedures for utilizing feedback data; however, fundamental guidance through the methodology of the ISD process is contained in Procedures for Instructional Systems Development (NAVEDTRA 110). Specifically, NAVEDTRA 110 lists four general actions:

| | | CRITICALITY INDEX | | |
|---|---|---|---|---|
| | | HIGH | MODERATE | LOW |
| PERFORMANCE ADEQUACY INDEX | HIGH | Optimal Training | Moderate Overtraining | Significant Overtraining |
| | MODERATE | 14*<br>Moderate Undertraining | Optimal Training | Moderate Overtraining |
| | LOW | Significant Undertraining | Moderate Undertraining | Optimal Training |

*Number 14 refers to Job Task Statement Number 14 used in sample computation in figure A-7.

Figure A-6. Experimental Training Assessment

Computed training proficiency and utilization percentages for survey Job Task Statement Number 14 (Tie nautical knots) (see figures A-3 and A-4):

Training Proficiency Percentage: 64.3

Utilization Percentage: 77.8

Performance Adequacy Index from table A-4: Moderate

Criticality Index from table A-5: High

Matrix Cell Assessment: Moderately Undertrained

Figure A-7. Sample Derivation of Performance Adequacy and Criticality Indices

- decide if there is a training problem based on clear-cut evidence of a problem
- isolate the problem and determine its causes and effects
- decide the best way to solve the problem
- if it is a type A or B change (i.e., a major change (see CNET Instruction 1500.23 series for description)), develop a project plan and request permission to undertake the effort.

The feedback data gathering procedures and data analysis methods previously described are specifically related to obtaining evidence concerning the existence or nonexistence of training problems and to isolate those problems and their causes. This was the nature and limitations of the prototype tasking. Additional techniques for utilizing the data were not addressed directly. However, an experimental methodology was devised that is directed toward determining solutions to the training problems and the most appropriate point in the ISD process at which to apply corrective action. Attachment 4 contains an extended worksheet or booklet for this purpose. However, implementation of actual changes in course curriculum requires necessary command approval in accordance with pertinent instructions and directives.

# ATTACHMENT 1

## GUIDELINES FOR PREPARING FEEDBACK INSTRUMENT TASK STATEMENTS

This attachment contains guidelines for writing job task statements for use on feedback forms. Portions of these guidelines are based on TAEG Technical Note 4-79.

1. Use abbreviations cautiously since they may not be understood by all individuals responding to a task statement. It is good practice to spell out a term when it first appears and follow it with the abbreviation in parenthesis. In subsequent tasks, the abbreviation may stand alone.

2. Use short words and phrases in preference to long words or expressions. For example, "Write production and control reports" is preferred over "Accomplish necessary reports involved in the process of maintaining production and control procedures."

3. Begin the task statement with a present tense action verb with the subject "I" understood; for example, use "operate," "write," "clean," instead of "operates," "writes," "cleans."

4. Begin each task statement with an action verb which specifies behavior that a supervisor can observe. Do not use verbs which reflect unobservable behaviors (e.g., "plan," "devise").

Example: "Plan troubleshooting electrical malfunction on aircraft armament system," should be restated in a form such as:

"Troubleshoot electrical malfunctions of aircraft armament systems...."

5. Related to the above guidelines is the requirement to use action verbs which reflect behaviors which the supervisor can observe in the on-the-job performance of a graduate. Avoid using verbs such as "describe," "explain," which would require the supervisor to question a graduate before he could rate training adequacy.

Example: "Describe safety precautions involved when...." is not considered appropriate for evaluation questionnaire use. Where possible, such statements should be converted to forms such as:

"Use (observe, practice, follow) proper safety precautions involved when...."

6. Make each task statement specific and capable of standing alone. Do not use an action subheading followed by a series of objects.

Example: "Operate the following equipment: (1) Automatic capsule filler, (2) distilling apparatus, (3) force filters" should be restated separately in a form such as:

"(1) operate automatic capsule filler, (2) operate distilling apparatus, and (3) operate force filters."

7. Use simple statements without qualifiers unless the qualifier is essential to the meaning of the statement. For example, "operate power mower" is preferred over "operate power mower to cut grass," since the qualifier is not necessary. However, "schedule personnel for formal training" is preferred over "schedule personnel."

8. If a modifier is needed for greater specificity, be sure to include all other significant tasks with comparable modifiers. For example, in an automotive

mechanic inventory, "repair transmissions" would probably be specific enough. However, if the statement were modified to read "repair automatic transmissions," "repair standard transmissions" should also be added to the list.

9. Avoid stating tasks that are obviously too specific or trivial. For example, "operate fork lift" is sufficient. It is not usually necessary to list subordinate tasks such as: "turn ignition key," "shift gears," "elevate fork."

10. Avoid listing tasks that are too general. For training evaluation purposes task statements such as, "repair carburetors," "repair body sections," are preferred over more global statements, such as "repair motor vehicles."

11. Avoid redundant and unnecessary qualifying phrases such as "when appropriate," "as required," "in accordance with prescribed directives." For example, "maintain logs" is probably sufficient. Forms such as, "maintain necessary logs in accordance with prescribed Navy-wide or local regulations and directives" would not normally be necessary for an evaluator to understand what graduate action he is to evaluate.

12. Present only one job task at a time. Multiple tasks may occur from stating more than one verb requiring dissimilar actions (e.g., "remove and repair") or more than one object. Both are to be avoided since the supervisors opinion of training adequacy or appropriateness may not be the same for all tasks. Separate, discrete statements are preferred as shown in the two examples below.

Example 1: "Use proper safety precautions involved when working on both energized and deenergized circuits and in the use of general cleaning agents" should be divided into statements such as:

- "Use proper safety precautions while working on energized circuits."
- "Use proper safety precautions while working on deenergized circuits."
- "Use proper safety precautions while using general cleaning agents."

Example 2: "Manually load, arm, de-arm, and download inert airborne bombs" should be divided into statements such as:

- "Manually load inert airborne bombs."
- "Manually arm inert airborne bombs."
- "Manually de-arm inert airborne bombs."
- "Manually download inert airborne bombs."

13. Group more than one job task only when they are usually done simultaneously or as a part of one general evolution.

Example: "Measure AC and DC voltage, small DC current and resistance with a multimeter AN PSM-4 or an equivalent."

14. Include the equipment needed to perform a task if there are other types of equipment with which to do the task.

Example: "Measure resistance of insulation with a 500 volt meggar."

15. Do not generate job task statements that primarily relate to skills taught in the school to assist/reinforce theoretical understanding and which reflect tasks infrequently done on the job.

16. Avoid referencing publications by number. Fleet supervisors may not "know" the document(s) or be intimately aware of its contents. It is not desirable to require a supervisor to look up publications for completing a feedback instrument.

Example: "Describe equipment tag-out procedures in accordance with OPNAVINST 3120.32" can be restated in a form such as:

"Tag-out equipment."

17. Generate job task statements which can be expressed clearly and concisely in behavioral terms. The following potential evaluation instrument item probably should be discarded or a determination made of the essential behaviors involved in the performance of this job.

"Perform procedural steps as stated in NAVEDTRA 43241B for Theory Qualification 101, except 201.218 and Watchstanders Qualification 401 as applicable."

18. Avoid writing task statements that are so equipment specific that they are likely to produce large numbers of "not observed" responses. Create more general statements when it is necessary.

Example: "Select and execute the proper utility routines for job execution on the AN/UYK-S(V) as outlined in the V-1500 SMIS Software Manual" should be restated in a form such as:

"Select and execute the proper utility routines for job execution on the assigned computer."

# ATTACHMENT 2

# INTERVIEW KIT

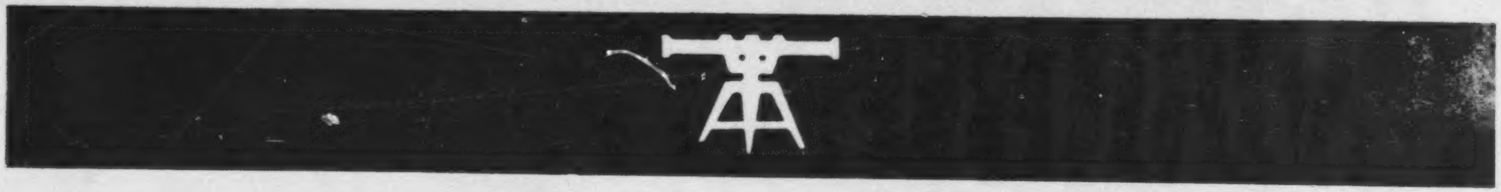
This attachment contains an Interview Kit (i.e., samples of forms recommended for use in a school based training feedback collection program along with instructions for their use). This attachment is comprised of four annexes. Annex A contains sample pages of an interview form which provides an example of the recommended format. A set of instructions for the use of the suggested interview form is contained in annex B. Annex C is a sample interviewee Background Data Form. Annex D lists possible nonperformance and performance deficiency Reason Codes for use during interviews.

# ANNEX A

# SAMPLE INTERVIEW FORM

This annex contains four pages of a sample interview form. The first page is a title page. The second page is the first data collection page. It includes instructions to the interviewee. The third page is a typical data collection page, and the fourth is the final "general comments" page of the interview form.

# FIRE CONTROL TECHNICIAN



INTERVIEW OF (rate)______(name)____________________
TIME SCHEDULED: ____________________________
DATE SCHEDULED: ____________________________
TIME TO COMPLETE PART A ____________________
TIME TO COMPLETE PART B ____________________
INTERVIEWER'S NAME ________________________

The purpose of this survey is to obtain information which can be used to improve "A" school training. At this time you are to complete only Part A of the form. Part B will be completed with the interviewer.

The following pages list tasks which receive some emphasis in Phase I of the FT "A" School. Complete Part A by placing a check in one of the three boxes, or categories, at the right of each task statement. Base your selection of categories on your observations of a typical "A" school graduate during his first 6 months of duty in your unit under a typical level of supervision. If the specific task was not usually done by the average, recent graduate, check the "Don't Do" category. If the task is done, and the average graduate had no difficulty in performing it, check the "Do with Ease" category. If the task is done by the average, recent graduate, but he has some difficulty in performing it, check the "Do with Difficulty" category. Make an appropraite selection for each of the 31 tasks listed on the survey form. When you have completed the form, record the time that you spent. Take the form, with Part A completed, to the interviewer.

| PART A | | | | | | PART B |
|---|---|---|---|---|---|---|
| | | CATEGORIES | | | | REASONS |
| | TASK STATEMENTS | Don't Do | Do With Ease | Do With Difficulty | Code | |
| 1. (1.4) | PERFORM BASIC PMS PROCEDURES (READ QUARTERLY/WEEKLY CHART, DRAW CURRENT MRC CARD/TOOLS, ETC.) | | | | | |
| 2. (1.5) | OBSERVE STANDARD ELECTRICAL SAFETY PRECAUTIONS | | | | | |
| 3. (1.2) | OBSERVE STANDARD SECURITY PRECAUTIONS | | | | | |
| 4. (7.1) | PERFORM FAILURE ANALYSIS ON AUDIO AMPLIFIER | | | | | |
| 5. (7.2) | PERFORM FAILURE ANALYSIS ON VIDEO AMPLIFIER | | | | | |

| TASK STATEMENTS | CATEGORIES | | | | REASONS |
|---|---|---|---|---|---|
| | Don't Do | Do With Ease | Do With Difficulty | Code | |
| 6. (8.3) PERFORM FAILURE ANALYSIS ON CRYSTAL OSCILLATOR | | | | | |
| 7. (8.2) PERFORM FAILURE ANALYSIS ON WEIN-BRIDGE OSCILLATOR | | | | | |
| 8. (8.2) PERFORM FAILURE ANALYSIS ON PHASE SHIFT OSCILLATOR | | | | | |
| 9. (8.4) PERFORM FAILURE ANALYSIS ON BLOCKING OSCILLATOR | | | | | |
| 10. (6.1) PERFORM FAILURE ANALYSIS ON LIMITING CIRCUITS | | | | | |
| 11. (6.2) PERFORM FAILURE ANALYSIS ON CLAMPING CIRCUITS | | | | | |
| 12. (6.3) PERFORM FAILURE ANALYSIS ON COINCIDENCE CIRCUITS | | | | | |
| 13. (6.4) PERFORM FAILURE ANALYSIS ON SAW-TOOTH GENERATOR | | | | | |
| 14. (9.1) PERFORM FAILURE ANALYSIS ON FREE RUNNING MULTIVIBRATOR | | | | | |
| 15. (9.2) PERFORM FAILURE ANALYSIS ON MONOSTABLE MULTIVIBRATOR | | | | | |

Although we have already asked you to consider existing school training in great detail, there is one more very important job you can do for us. We need to know what things presently are NOT taught in school but should be taught there. Consider things the trainee has had to learn on the job with much loss of time for both the trainee and the supervisors. Also consider tasks that still cannot be performed because they were not learned in school and because it has not been possible to train on the job. Please do this carefully and thoughtfully. (Do not include tasks on special equipment.) You may include comments about nontechnical training subjects such as military appearance and behavior.

1. ______________________________

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2. ______________________________

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3. ______________________________

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4. ______________________________

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6. ______________________________

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# ANNEX B

# SAMPLE INTERVIEW INSTRUCTIONS

This annex contains suggested instructions for conducting interviews. This includes preinterview guidance for the interviewers and directions to be read to the interviewee.

## INTERVIEWER GUIDANCE

### INTRODUCTION AND PURPOSE OF PROJECT

The purpose of this effort is to obtain firsthand information from personnel newly arrived from fleet units who had occasion to observe and evaluate recent graduates of their respective "A" schools.

### GENERAL INFORMATION ABOUT THE INTERVIEW

1. Insure only one interview is scheduled at a time. Be sure to have a private area available for your use. The Interviewing Package should contain the following:

- Directions to Be Read to the Interviewee
- Interview Form
- Two copies of Reason Codes (one for you and one for the interviewee).

2. When the person reports to you, read/paraphrase the following information to him/her. (This will explain the purpose of the project and what is expected of the student.)

> "The purpose of this project is to obtain information on how effectively 'A' schools are meeting the needs of the fleet. The way we are doing this is to interview persons like yourself who have observed or supervised recent graduates from the 'A' school after they reported to the fleet. Because of your unique experience your input is the best source of information available for this purpose. Any data reported will be grouped in tables. Individual names will not be used. Your thoughtful and accurate answers are needed."

3. Go over the instructions for Part A of the interview form with the individual to be sure he/she understands what is required.

4. Instruct the individual to complete Part A.

5. When you receive the interview form from the student, review Part A quickly to be sure a category has been selected for each task. You will fill in Part B as you conduct the interview. Go through all of the "Don't Do" tasks first. Have the interviewee select a reason code from the "Don't Do category. After the appropriate code is selected, ask for and record the specific information that prompted the selection. If none of the codes are applicable, write the reason in the space provided. If more space is needed, write on the back of the page with the identifying task number. Then go back to the tasks identified as "Do With Difficulty." Again, ask the respondent to select an appropriate reason code. Obtain additional information as to why it is difficult. These data are the most important of the survey. Be as thorough as possible.

For those tasks checked "Do With Ease," ask the interviewee if there are any tasks which he would like to discuss or explain. (Consider here correct "A" school curriculum emphasis, possible instances of overtraining, and areas for elimination from the curriculum.)

6. Complete the interview using the last page of the interview form. This page requests the interviewee to consider tasks which are not taught in "A" school but should be taught there. It also asks for tasks the student has had to learn on the job, specifically tasks that cannot be performed because they were not learned in "A" school, and for which training is not available on the job.

7. When you conduct the interview, follow the "Directions to Be Read to the Interviewee." This will help to insure standardization of the procedures which is important in interpreting the data.

Record the time it took to conduct the interview.

Thank the student for his/her time and effort.

## DIRECTIONS TO BE READ TO THE INTERVIEWEE

DURING THIS INTERVIEW, I WILL GO OVER YOUR RESPONSES TO THE TASK STATEMENTS WITH YOU, AND ASK YOU TO PROVIDE MORE INFORMATION ABOUT THE ABILITY OF "A" SCHOOL GRADUATES TO PERFORM JOB TASKS.

FOR THOSE TASK STATEMENTS YOU MARKED "DON'T DO," I WILL READ EACH STATEMENT THUS MARKED. I WOULD LIKE YOU TO EXAMINE THE "DON'T DO" SECTION OF THE REASON CODE SHEET. AFTER I READ EACH ITEM, PICK THE REASON (OR REASONS) THAT BEST DESCRIBE WHY YOU ANSWERED "DON'T DO" TO THAT ITEM. IF NONE OF THE CODES ARE APPLICABLE, TELL ME THE REASON WHY YOU MARKED THE ITEM THAT WAY. (Ask for amplification of the coded answer; be specific.) (Work through all the "Don't Do's." When finished, read the material below to the interviewee.)

NOW LET'S PROCEED TO THE "DO WITH DIFFICULTY" ITEMS. AFTER I READ EACH ITEM, DO THE SAME THING YOU JUST DID, BUT PICK YOUR CODES FROM THE "DO WITH DIFFICULTY" SECTION. (Ask for amplification of the coded answer; be specific.) (After finishing the "Do With Difficulty" list, discuss the "Do With Ease" items.)

DO YOU HAVE ANY GENERAL COMMENTS ABOUT THE "DO WITH EASE" ITEMS? FOR EXAMPLE, HOW WELL IS THE SCHOOL TEACHING THEM? ARE THERE ANY THAT MAY REPRESENT INSTANCES OF OVERTRAINING OR WOULD YOU RECOMMEND DROPPING ANY OF THEM FROM THE SCHOOL CURRICULUM? (Record his/her answers.)

(Complete the interview by going to the last page of the Interview form. Ask the interviewee for any further suggestions or recommendations.)

(Thank the interviewee for his cooperation and effort in completing this interview.)

# ANNEX C

## SAMPLE BACKGROUND DATA FORM

This annex contains a sample Background Data Form for collecting information about individuals attending advanced schools and for selecting interviewees.

## BACKGROUND DATA FORM

1. NAME ________________________________________ RATE ______________

2. TIME IN SERVICE (ACTIVE DUTY) IN YEARS ______________________________

3. COURSE ATTENDING _________________________________________________

4. WHAT WAS YOUR PREVIOUS DUTY STATION? SEA DUTY ______ SHORE DUTY _______

5. IF YOU CAME FROM SHORE DUTY, WHERE WERE YOU STATIONED? _________________

6. IF YOU CAME FROM SEA DUTY, WHAT SHIP CLASS (TYPE) WERE YOU ASSIGNED TO?

__________________________________________________________________

7. WHAT WAS YOUR PRIMARY BILLET TITLE? _________________________________

8. IN THE LAST 12 MONTHS, HAVE YOU HAD AN OPPORTUNITY TO OBSERVE AND EVALUATE RECENT GRADUATES OF CLASS "A" SCHOOL IN AN OPERATIONAL ASSIGNMENT?

YES ______ NO ______

IF YOU ANSWERED "YES" TO THE PREVIOUS QUESTION, PLEASE ANSWER THE FOLLOWING QUESTIONS. IF YOU DID NOT ANSWER "YES," STOP AND DISCUSS YOUR ANSWER WITH THE INSTRUCTOR.

9. HOW MANY PEOPLE DID YOU OBSERVE AND EVALUATE? _________________ FOR HOW LONG? __________________________
(Number of Months)

10. HOW SATISFIED WERE YOU WITH THEIR ABILITY TO MEET MINIMUM JOB REQUIREMENTS AFTER A TYPICAL BREAK-IN PERIOD?

HIGHLY SATISFIED

MODERATELY SATISFIED

SATISFIED

MODERATELY UNSATISFIED

HIGHLY UNSATISFIED

11. IF YOU ANSWERED UNSATISFIED TO ANY DEGREE, LIST THE GENERAL AREA(S) THAT REQUIRED ADDITIONAL TRAINING OVER AND BEYOND THE TYPICAL BREAK-IN AND ORIENTATION.

# ANNEX D

## SAMPLES OF REASON CODES

This annex contains 40 possible nonperformance and/or performance deficiency Reason Codes for "Don't Do" and "Do With Difficulty" interviewee response choices. Within the "Do With Difficulty" category Reason Codes are listed for three general categories of reasons for performance deficiency--operational factors, personal adjustment problems, and technical training inadequacy.

## REASON CODES

"DON'T DO" CATEGORY

A. TASK NOT DONE ON MY SHIP/STATION/SYSTEM

B. TASK NOT EXPECTED OF SOMEONE IN RECENT GRADUATE'S RATE OR LEVEL OF EXPERIENCE

C. TASK EXPECTED OF RECENT GRADUATES BUT AVERAGE GRADUATE UNABLE TO PERFORM

D. NOT SUFFICIENT TIME FOR GRADUATE TO HAVE BEEN ASSIGNED TO THIS TASK.

"DO WITH DIFFICULTY" CATEGORY

OPERATIONAL

E. TIME CONSTRAINTS DUE TO OPERATIONAL COMMITMENTS

F. FATIGUE/STRESS DUE TO OPERATIONAL COMMITMENTS

G. EQUIPMENT EXTREMELY COMPLEX

H. TECHNICAL MANUALS TOO COMPLEX

I. INEFFECTIVE LEADERSHIP/SUPERVISION

J. DIFFICULT ACCESS TO EQUIPMENT

K. TASK HIGHLY UNPLEASANT (i.e., uncomfortable environmental situation such as heat, soot, shock hazard, exposure to elements).

PERSONAL

L. LOW MOTIVATION FOR OPERATIONAL ASSIGNMENT

M. LOW MOTIVATION FOR WORK CENTER ASSIGNMENT

N. LOW MOTIVATION FOR TECHNICAL SPECIALTY

O. LOW MOTIVATION FOR NAVAL SERVICE

P. INTERFERENCE FROM PERSONAL PROBLEMS (Legal/Psychological/Health/Substance Abuse).

TECHNICAL

Q. DID NOT KNOW WHAT TO LOOK FOR DURING INSPECTION OF SYSTEM (OR COMPONENT)

R. DID NOT UNDERSTAND STEPS OF PROCEDURE ON MRC

S. COULD NOT "READ" PRINT IN EQUIPMENT TECHNICAL MANUAL (INSTRUCTION BOOK)

REASON CODES (continued)

T. DID NOT KNOW WHICH TOOL OR TEST EQUIPMENT TO USE (SELECTED WRONG TOOL OR TEST EQUIPMENT FOR JOB)

U. DID NOT KNOW WHICH MATERIAL TO USE (SELECTED WRONG MATERIAL FOR SERVICE USE)

V. COULD NOT IDENTIFY WHICH PART CAUSED MALFUNCTION (IDENTIFIED WRONG PART)

W. NOT WELL VERSED IN TROUBLESHOOTING PRINCIPLES

X. COULD NOT USE TOOLS OR TEST EQUIPMENT CORRECTLY

Y. COULD NOT DISASSEMBLE (OR REASSEMBLE) COMPONENT

Z. COULD NOT PERFORM PROCEDURAL STEPS ON MRC CORRECTLY

AA. COULD NOT MAKE REQUIRED MEASUREMENTS (OR ADJUSTMENTS)

BB. COULD NOT PERFORM REQUIRED TESTS

CC. COULD NOT FABRICATE REPLACEMENT PART(S)

DD. COULD NOT IDENTIFY ACTUAL COMPONENTS OF SYSTEM (OR PARTS OF COMPONENTS)

EE. COULD NOT EXPLAIN FUNCTION (OR PURPOSE) OF COMPONENT(S) IN SYSTEM

FF. COULD NOT "READ" SYSTEM SCHEMATIC AND WIRING DIAGRAM

GG. COULD NOT "READ" SYSTEM PIPING DIAGRAM

HH. COULD NOT EXPLAIN OPERATING PRINCIPLE(S) OF SYSTEM (OR COMPONENT)

II. COULD NOT TELL WHEN SYSTEM (OR COMPONENT) HAD A MALFUNCTION

JJ. COULD NOT PHYSICALLY "TRACE" SYSTEM FROM ONE POINT TO ANOTHER

KK. COULD NOT LINE UP SYSTEM (OR COMPONENT) IN ACCORDANCE WITH INSTRUCTIONS

LL. COULD NOT OPERATE TEST EQUIPMENT PROPERLY

MM. COULD NOT STOP/SECURE SYSTEM (OR COMPONENT) IN ACCORDANCE WITH INSTRUCTIONS

NN. CAN DO THE TASK BUT NOT AS QUICKLY AS NECESSARY/DESIRED.

# ATTACHMENT 3

# GUIDANCE FOR CONDUCTING TRAINING APPRAISAL INTERVIEWS

This attachment contains the complete text of a U.S. Air Force publication entitled The Evaluation Interview. The document (undated) was prepared by the USAF 3415th Technical School (now the 3400th Technical Training Wing), Lowry Air Force Base, Colorado. It contains a concise review of interview techniques applied directly to acquiring training appraisal information in a military setting. Because of its precise focus and relevance to the previously recommended interview procedures, the entire content is included.

## THE EVALUATION INTERVIEW

There are many ways to evaluate training, however two of the most common are interviews and questionnaires. It is not unusual to hear, "Questionnaires are no good, that interview of graduates is best." Unfortunately, the method of conducting the interview may be such that the interview results are no better than those obtained from the much maligned questionnaire.

The most common interview is the question-answer type. An observation-interview may be conducted to actually observe the graduate as he performs the tasks and jobs of his specialty. Neither of these types of interview is easy to conduct. Properly conducted, each will produce reliable and valid information.

In any form, the interview is a means of collecting information. To the extent you are obtaining information, each time you ask a question you are interviewing. A conference is a group interview. We spend hours preparing for a conference and minutes in preparing for a person to person interview. In both cases the objective is to collect information and in both cases the amount of information collected is directly proportional to the preparation and effort expended.

Because of the versatility and flexibility of the interview, it has a particular value in an evaluation program. The interview permits exploring undocumented areas of information specific to the training. It allows extending the investigation while it is still in progress and most important, it provides for exploration of related information at the most propitious time.

Evaluation usually requires inquiries into the personal opinions, desires, satisfactions, and fears of the graduate. The interview is invaluable in these situations because it allows the evaluator to probe the graduate's innermost thoughts.

With all of its touted advantages, the interview has some disadvantages; principally time, cost, and the difficulty of obtaining the qualified interviewer. Some of these disadvantages can be minimized by proper planning. Both time and cost factors can be made more acceptable by selecting a locale having a large graduate population available for interviewing. The securing of a qualified interviewer is not so easily solved. It is the purpose of the remainder of this article to suggest to the evaluator-interviewer some of the techniques which will help him to obtain the information he seeks. Procedures are equally appropriate when interviewing supervisors, or for any type of interviewing.

With this introduction to the techniques of interviewing, it is appropriate to discuss the preparations for the interview.

The evaluator planning to visit a base for the purpose of interviewing graduates should request suitable facilities in which to conduct the interviews. He is, of course, completely dependent upon the judgment of his base contact as to what is suitable, and upon the facilities available at the base.

The first act in an interview must be an introduction of who you are and why you are conducting the interview. Your name in itself may be meaningless to the graduate, but it is important that your introduction be given clearly, don't mumble. It is equally important that you learn the graduate's name and that you pronounce it correctly. If you're not sure of the pronunciation ask what is correct. It is embarrassing to try to talk to people without knowing their name. Names are important to people and they are pleased and flattered when a comparative stranger has enough interest to learn their name and pronounce it correctly.

When the introductions are completed you should explain in some detail what you expect to learn from the graduate and what you intend to do with that information. Once again, be alert and observant. From this point to the conclusion of the interview, every action and every word uttered by the graduate has meaning; a meaning you must interpret correctly if your interview is to be successful.

Your preparations are now complete and you are ready to delve into the technical aspects of the information you must collect in the interview. To do this, you need to know more about the techniques of interviewing. Basically you may select any of three interviewing techniques, but it is almost certain you will combine them during the course of an interview. One more caution, make voluminous notes. A good interview develops many ideas, many answers, far more than you can remember when you're back at the office. Note key words and ideas during the interview, expand these into a complete report at the conclusion of the interview.

If there is a need for precise comparison of the answers given by all of the graduates to all of the questions, an in-depth schedule of questions must be prepared. The interviewer will read these, word for word, and in the exact sequence, to the graduate and record his answers. This procedure assures that identical questions are asked in exactly the same sequence of each graduate and because of this, each answer by each graduate can be compared with all the answers from all of the graduates.

When less precise comparison is sought, the schedule of questions is prepared for guidance. The interviewer may, at his discretion, reword or rephrase the questions, change the sequence, add more questions, or even delete questions, in an effort to match the climate of the interview to the mood of the graduate. In this type interview the schedule of questions assures general coverage of the material.

Finally, there is the completely open interview. The interviewer asks a provocative question and thereafter does little more than encourage the graduate to talk. This type is difficult to use, but produces extremely valuable information available from no other source.

At some time during the progress of an interview, the skilled interviewer will make use of each of these techniques. The skill with which he uses them will, to a large extent, determine the quantity and value of the information he obtains from the graduate. In all interviewing there is a minimum of information which is acceptable and a maximum which is possible. No interview should fail to produce the minimum and no interview should have less than the maximum for its goal.

It is highly important that the schedule of questions be carefully prepared. When the evaluator is not technically qualified in the work area he would be wise to enlist the assistance of a technician. If he prepares the questions himself, they should be checked by a technician.

During the early part of the interview the evaluator should stay within the schedule of questions, starting by reading the questions verbatim and keeping the same sequence. The somewhat formal atmosphere and the accuracy of the questions tends to increase the graduate's confidence in the evaluator as knowing the field of work. As the interview progresses, the evaluator must be alert to indications that the graduate wants to volunteer information beyond the scope of the questions.

When it becomes evident that the graduate is anxious to tell his story, the interview should shift to the second technique, asking questions as they are cued by the answers and comments of the graduate. It is desirable at this stage to stay within the parameters of the schedule of questions.

If the interview has been conducted skillfully to this moment, and if the time is available, the third technique should be employed. The third technique is useful for determining concepts, attitudes, and personal attributes. It can be used to explore the intangibles so important to a full understanding of the graduate's problems, but so completely separate from the technically oriented portion of the interview. The graduate is ready for this technique when he begins to insert personal comments among his technical answers.

The open interview is often referred to as spontaneous, and it should give this impression. However, it is not spontaneous, it must be planned. The interviewer must have in his repertoire carefully developed questions designed to elicit the personal type answer. Planning here is vital, but it must never show except in the results. This type interview tests the skill of the interviewer to the utmost.

Timing is the secret weapon of the interviewer. Every speaker, every actor knows the value of timing to his performance. Jack Benny and Bob Hope are experts in the use of timing and both exploit the "pause" to its full limit. The pause is equally valuable in interviewing, following a pithy comment or the posing of a penetrating question. Don't be afraid to wait for the graduate to comment or answer your question. You planned this interview, he didn't and he needs time to think.

Generally speaking, the answers the graduate gives to your questions will contain clues to the area of questioning that should follow. Avoid introducing questions that have not been cued by some previous reference. This is a part of the proper timing for asking a question. Be alert to openings presented by the graduate as he rambles from subject to subject, but still within the purview of the interview. In some cases, the point must be forcibly exploited, but usually it is better to lead the answers toward the area in which you are seeking information. Timing has different implications for the observation type interview, but is equally important to the success of the interview. The interviewer must never pose a question while the graduate is actually performing a task. First, to do so may cause an accident by dividing the graduate's attention. And, second, dividing the graduate's attention will result in a poor performance. Timing is important, use it to improve the results of your regular interview and during all observation-interviews.

An observation-interview requires the evaluator to be present during the performance of the specialty tasks by the graduate. It's a lot easier to "talk a good game than it is to play one." You can read, or even formulate acceptable questions, without being a job expert, but for the observation-interview you must be able to identify what you see and know why it is being done. An observer who is familiar with the task or job being done is able to evaluate both the knowledge being applied to the performance of the task or job, and the skill with which the manual movements are made. The technically qualified evaluator is also able to estimate the quality of what has been produced.

An important part of the ability to observe accurately is being able to identify the various work activities as they occur and know what knowledges and skills are being exhibited. Close attention to details is essential to accurate observation. If the graduate shows small hesitations, makes false movements, or looks to see who is watching, he is plagued by inadequacy and indecision.

The observation must include such items as job organization, selection and placement of tools, parts, materials, and equipment, and the choosing of the correct procedures. All of these are indicators of the graduate's overall knowledge of the job and his proficiency during his performance.

When the graduate is working, his movements should exhibit an observable rhythm and purpose. If his movements are jerky, lack of coordination, or he is often out of position, either he is improperly taught, or he has not learned how to perform the tasks. Finally, the end product of his efforts must be usable, must meet the established standards of quality. For the evaluator, there is no better advice than, "Know the job before critiquing the performance."

Regardless of the interview technique, question and answer or observation, questions must be developed, properly constructed, and wisely used.

To some extent all of the graduate's answers will be influenced by the manner in which the question is asked. The phrasing, the choice of words, and even the voice intonations may cause significant effects in the graduate's answers: Fundamentally, there are two types of questions used in interviewing.

A type of question sometimes called "closed" or "limiting", is largely directive and is answerable in a few words. There are three subtypes of this question. One asks for identification of who, where, when, how, or which. The second asks for a selection from among several answers offered. The third asks only for a yes or no answer.

The so-called "open" or "nonlimiting" question does not direct an answer, rather it invites longer and more descriptive answers.

The evaluator must decide the ratio of "limiting" to "nonlimiting" questions he will use in the interview. Too many "limiting" questions may cause the graduate to feel he is being restricted, that he is being prevented from giving all of the information he possesses. Because he feels this way he may sulk and withhold valuable information. On the other hand, too many "nonlimiting" questions may cause the interview to bog down for lack of direction. This is very likely to happen if the graduate has difficulty expressing his ideas. Such people are often inarticulate and incoherent. During the questioning they become greatly disturbed and may refuse to cooperate. These people work better with the "limiting" question because it provides a clue to the desired answer to the question, a question they may not have fully understood.

Either type question may have a relationship with previous and future questions, neither will disrupt the continuity of the questioning. The evaluator may plan for a gradual build-up of blocks of information which will finally portray a complete job story. If this is the plan, there must be several varieties of questions asked to obtain the information.

A follow-on style question can be formulated asking for additional information about a subject previously discussed. Another variety of questions which is quite useful is the repeating of the graduate's words. It shows retention of what he has said and proves you were listening. It can also be used to introduce a new direction of questioning.

When there is a need for clarification of vague or ambiguous references made earlier in the interview, or when there has been a general reference and there is now a need for explicit information, a specific variety of questions must be developed.

It is sometimes necessary to summarize the information given so that it can be confirmed and questions can be designed to accomplish this purpose. When inconsistencies develop between answers given, or between answers and known information, a direct question pointing out the inconsistencies and demanding correction is necessary. It is sometimes desirable to ask certain questions the second time to determine if the graduate gives the same answer.

A bit of trickery may be used to obtain further clarification. The evaluator may deliberately misstate a fact. Instantly, the graduate will correct the statement and in the process, clarify and expand his explanation. A deliberate misquote of a previous statement made by the graduate is an even greater spur. You have misquoted his statement and he feels responsible for correcting the misinterpretation. He is immediately called upon to explain in great, and enlightening, detail that you are mistaken and that in truth, this is what he said. All the evaluator need do now is listen.

Trickery may be used to elicit clarification, but the trick of using "leading" questions is not always legitimate. The "leading" question, used either by accident or by design, can dictate an answer. Most authorities agree that an interviewer should avoid implying an answer to his own questions. However, there are times when the evaluator may want to indicate what type answer he expects.

An examination of what constitutes a "leading" question indicates there are two elements which can be used to influence the answer to a question. One of these is to indicate by choice of words, phrasing, or voice intonation the type answer expected. The second is to assume that there are certain behaviors, ideologies, and values that are common to all graduates participating in the interview cycle.

A question which tends to indicate the expected answer requires the evaluator to have considerable knowledge about the graduate, or about the subject matter. If the evaluator does not have this information, but uses some method to influence the answer, he is using a "leading" question.

The difference between the two types of "leading" questions is that in the first case the evaluator has factual information to support the question. In the second case he lacks the information, but "leads" the graduate in the direction of the interview results he wants.

The second element in the "leading" question is based on the fact that there are areas of commonality among all people. Because of this it is almost impossible to ask a question that is not based on some type assumption. If the assumption is based on valid information in the possession of the evaluator, the graduate's answer will be informative. If the evaluator does not have specific information upon which to base his assumption, this type "leading" question may produce incomplete or invalid information.

It is difficult to determine the detrimental effects of the "leading" question on the results of the interview. However, use of the "leading" question does make it easier for those graduates who lack the knowledge, or who do not understand what the evaluator wants, to give an answer they believe the evaluator wants to hear. Probably, these "agreeable" answers are most often given by those having a low level of understanding than by those having a high level of understanding.

Just a little more on the subject of questions. Questions may be asked for an objective, subjective, or indeterminate response from the graduate.

The objective question is concerned with the characteristics of people, places, objects, or happenings, that can be seen. These are the type questions used when a schedule of questions is prepared. These are fact-finding questions.

The subjective question deals with opinions or feelings, the unseen factors. These questions are used for the third type of interview. Every answer must be analyzed to determine its reflection of the attitude of the graduate.

Indeterminate questions deal neither with characteristics or opinions, but are often descriptive in tone. These too, are used in the third type of interview. Like the subjective question answers, they must be analyzed.

You have asked a lot of questions and heard many answers, how do you know if the graduate has told the truth, if his answers are valid? The evaluator is responsible for determining the validity of what the graduate tells him and he has available to him three methods for estimating the validity.

If the evaluator has properly prepared himself for the interview he has considerable amounts of information at his disposal. By careful analysis of what he is told and by comparing it with what he knows of the work area, he is in a position to make reasonably accurate judgments of the validity of the information he has received.

Another method of estimating the validity is the observation and evaluation of the style and manner in which the graduates have responded. Close observation during the interview will often reveal clues indicative of the sincerity of the graduate and thus key the authenticity of his answers. If the graduate shows any doubt, hesitancy, prejudice, or uncertainty, the information should be accepted with caution.

Finally, the evaluator should be able to make some judgments based on what he knows about the graduate. An insight into the graduate's knowledge, experience, or background will yield clues to the worth of his answers.

The entire success of the interview depends upon the degree of communication established between the evaluator and the graduate and the ability of the evaluator to listen intelligently. The development and format of the interview must have as its goal the complete understanding and cooperation of the graduate. The evaluator must earn the respect and the confidence of the graduate. Any action, any words which weaken the respect and confidence of the graduate in the evaluator will decrease the effectiveness of the interview.

It is highly possible that in certain situations the evaluator will be confronted with some unanticipated responses. If he is alert, these unanticipated responses may be highly productive. An unanticipated response may reveal previously unsuspected important factors, it may open the door to new avenues of questioning, or it may provide an explanation of some hitherto unknown fact.

The conduct of the interview is entirely in the hands of the evaluator. In today's vernacular, he must not lose his "cool", if he does, he also loses the interview. At all times and at all costs, the evaluator must be in full control of the interview. Any lack of organization of the interview will also have an adverse effect on the interview result. It is essential that the interview continue in the direction of its established goals. At no time and under no circumstances must the interview be allowed to degenerate into an argument.

The graduate and his supervisor, either or both of whom may be interviewed, must be considered as having a defensive attitude. Neither will volunteer any significant quantity of information. Each, in his own way, will defend and magnify the importance of their job to the Air Force mission. No matter how insignificant the job, it is theirs and admitted or not, they are proud of what they do. Destroy the importance of their job and you destroy them.

It is important that the evaluator show sympathetic interest in the problems of the graduate. Don't interrupt his story to tell yours. Never show boredom, even if you have heard the same story twenty times during the same day.

The evaluator must never allow controversial issues to enter into the conversation. If they are introduced, listen, but offer no comment and at the first opportunity, change the subject. Never become a victim of rumor mongering. Listen carefully, but do not repeat what has been said. Squelch those rumors you know to be untrue.

The evaluator has no authority to promise changes effecting the graduate's assignment or position. To do so must lead to embarrassment for the Air Training Command, the Center, and himself. The interview is a fact finding vehicle for evaluating the quality of the training received by the graduate, it is not a grievance interview. Stay out of the personnel and the personal business.

Do not criticize any action affecting the graduate or the operations of any Air Force function. It is probable that not all the facts have been made known to you. Get what you believe to be facts, verify that they are facts. Analyze their probable impact on the performance of the graduate, or upon the conduct of the training. Report the findings, include any supportable recommendations.

When the interview is completed thank the participants for their help. Leave them with a friendly feeling toward training. It is highly probable they will again be called upon to assist in evaluating graduates. Without their full cooperation, there would have been no interview, no exchange of information, and no evaluation of the graduate's performance or of the course from which he graduated.

## ATTACHMENT 4

## AN EXPERIMENTAL AGENDA FOR DETERMINING HOW TO SOLVE TRAINING PROBLEMS

This attachment contains an experimental agenda for processing the feedback information obtained in the interviews to a logical conclusion--a recommendation for change. This agenda is offered for use with the job tasks listed in the survey for which the data suggested a possible training problem. The process involves the following 10 steps:

1. Define the training problem as suggested by obtained feedback.
2. Review of the background (i.e., previous attempts to deal with the problem).
3. Review of related information from internal evaluation process.
4. Identify related learning objectives in the current curriculum.
5. Review of recent curriculum development with regard to the relevant learning objectives.
6. Explore resources to remediate problem.
7. Identify related training problems for which the solutions may also be related.
8. Rough outline of possible recommendations and/or entrance point in ISD process for further systematic development.
9. Determine approval authority for outlined recommendation and list pertinent instructions/references.
10. Recommendation(s).

1. Definition of training problem:

2. Background: (Historical attempts to deal with this problem or related problems, except for recent developments in the last year.)

3. Relevant data from internal evaluation process:

4. Pertinent learning objectives from the current curriculum:

__________, __________, __________, __________, __________

5. Recent curriculum development in these areas:

__________ Recent or anticipated change in time allotted to teaching this or closely related task: # hours: ± ______

______________________________

______________________________

______________________________

__________ Recent or anticipated change in teaching technique:

______________________________

______________________________

______________________________

__________ Recent or anticipated change in resources (manpower/ material) that may affect training in this area:

______________________________

______________________________

______________________________

6. Resources required to remediate problem:

__________ Additional space for instruction __________

______________________________

______________________________

______________________________

__________ More effective training aids/devices __________

______________________________

______________________________

______________________________

_______ Additional instructor manpower _______________

_______ More adequately trained instructors _______________

_______ Additional time for instruction added to the curriculum _______

_______ Recent and/or anticipated changes to curriculum will remediate the problem (time, teaching technique or resources)

_______ Recent and/or anticipated changes to curriculum will increase the problem _______________

_______ Creative brainstorming and/or additional research into more effective teaching strategies (problem is historical in nature requiring entirely novel approach or additional data)

__________ Other ______________________________________________

______________________________________________

______________________________________________

______________________________________________

7. Related tasks from the survey for which the solution to this problem may be related: _______, _______, _______, _______.

8. Rough outline of possible recommendations: (Address issues of cost and anticipated benefit) and/or entrance point in ISD process (see NAVEDTRA 110) for further systematic development:

9. Approval authority for this type of recommendation: ____________________

Pertinent Instructions/References: ______________________________________

______________________________________________

______________________________________________

10. Recommendations(s):

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